Paper
TRADE JOURNAL

AUG. 10, 1951

KETCHIKAN PLANS TO BE OPERATING BY MID-1954
. . . See page 11
RELATIVE ADVANTAGES OF SEVERAL TYPES OF D. C. VARIABLE SPEED DRIVES?
. . . See page 24
INDEX VOLUME 132
. . . See page 32

WOOD PULP
G

Established 1886

"What can we reason but
from what we know?"
ALEXANDER POPE

The surest indication of "the shape of things to come" in Pulp and Paper lies in the industry's impressive record of accomplishment. Year by year there has been tremendous progress—and further and greater advances are a certainty.

GOTTESMAN & COMPANY
— INCORPORATED —
100 PARK AVENUE • NEW YORK 17, N. Y.
EUROPEAN OFFICES: Birger Jarlsgatan 8, Stockholm, Sweden

GOING UP to cut Idaho's waste way down

This view shows four digesters being erected at the new Potlach Forests, Inc., mill in Lewiston, Idaho.

The Lewiston plant is the first pulp mill ever built in the Gem State. With this mill, wood conservation in Idaho takes a big step forward. Now the sawmill waste and cull timber from Idaho's forests are being put to good use. They used to make bonfires—now they're the feed material for a mill that's built to produce 160 tons of pulp per day.

This conservation program is a boon to the state and a credit to the company, for preserving our timber is certainly essential in these critical times. We're proud to have been associated with a program like that. Since its benefits are so far-reaching, we don't think you'll mind our pride.

For more information about Horton* digesters write our nearest office.

Other states where HORTON* digesters have recently been installed to increase pulp production.

- **Arkansas**
- **Florida**
- **Georgia**
- **Louisiana**
- **Oregon**

*Trademark Registered in U. S. Patent Office

CHICAGO BRIDGE & IRON COMPANY

Atlanta, 3.....2142 Healey Building
Birmingham, 1.....1529 North 50th Street
Boston, 10.....1064-201 Devonshire Street
Chicago, 4.....2130 McCormick Building
Cleveland, 15.....2255 Guildhall Building
Detroit, 26.....1565 Lafayette Building
Houston, 2.....2163 National Standard Building
Los Angeles, 17..1561 General Petroleum Building
New York 6.....3333-165 Broadway Building
Philadelphia, 3..1665-1700 Walnut Street Building
Salt Lake City, 4.....867 West 17th South Street
San Francisco, 4.....1577-200 Bush Street
Seattle, 1.....1368 Henry Building
Tulsa, 3.....1666 Hunt Building
Washington 6, D. C.....1170 Cafritz Building

Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY, and GREENVILLE

In Canada: HORTON STEEL WORKS, Limited, FORT ERIE, ONT.

B. F. Goodrich steel-jacketed press rolls have 50% more cushion; outlast others up to 100%

No reduction in diameter when re-covered

YOU can get longer life from press rolls, more cushion for smoother service, and savings in re-coverings with B. F. Goodrich steel-jacketed press rolls:

Ordinary press rolls have a hard rubber base next to the cast iron core. Soft rubber is then put on this hard rubber. In spite of precautions, when hard rubber is vulcanized, blisters sometimes form between iron and rubber. As blisters grow larger they extend through the hard rubber base into the soft rubber, causing early failure of roll.

Steel jacket gives more cushion

B. F. Goodrich engineers studied this problem and developed steel-jacketed press rolls. The nonporous steel jacket replaces the hard rubber base, making cover *all soft rubber—all cushion.*

Rubber is "locked" to steel

This soft rubber is bonded to the steel by the B. F. Goodrich Vulcalock process—developed and patented by B. F. Goodrich. This adhesion (over 500 lbs. per square inch) is actually a "locking" of rubber to metal. Rubber is of same density clear to metal and all the way across face of roll. There are no strings used to carry off gas, which in ordinary rolls, leave markings on rubber surfaces.

Ordinary rolls, vulcanized under steam, get only 35 lbs. pressure. Vulcanization of B. F. Goodrich rolls is done by a special hydraulic process under 225 lbs. pressure. Gives better adhesion, makes cover more dense, tougher, rolls dry faster.

Can be re-covered indefinitely

With ordinary rolls, core diameter decreases about ⅛" each time core is re-covered. But with B. F. Goodrich Vulcalock steel-jacketed rolls, cores can be re-covered without changing diameter. Steel core is not machined down and re-threaded each time. Old cores of ordinary rolls can be built up to any desired diameter by application of B. F. Goodrich steel jacket.

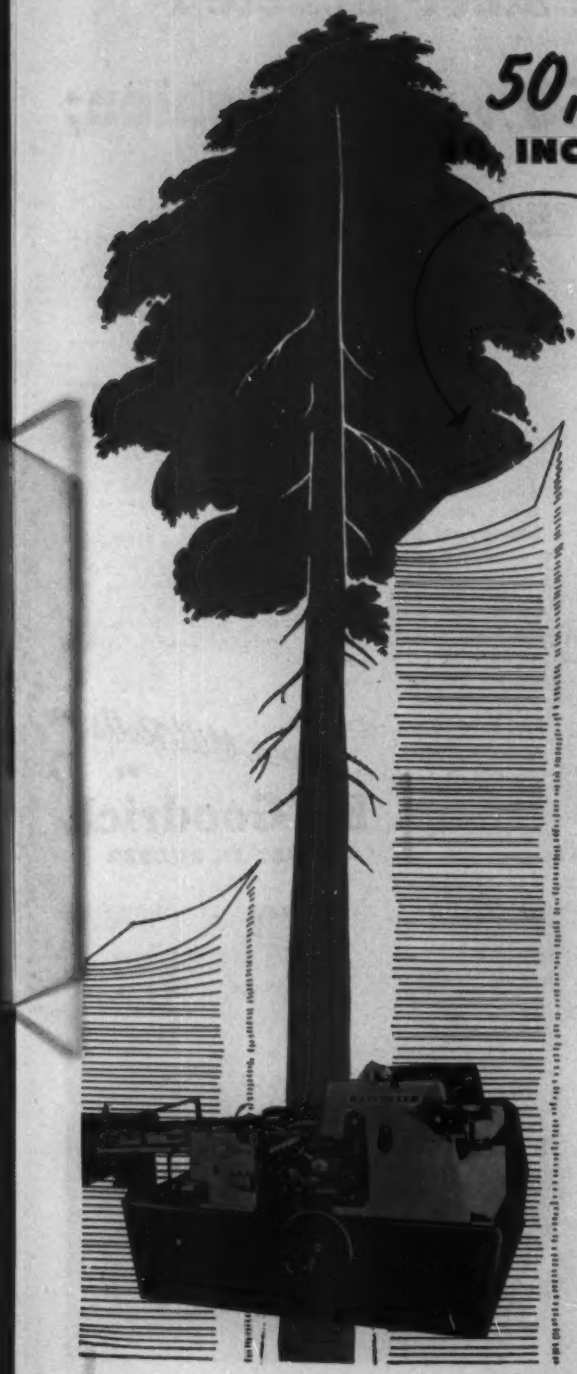
B. F. Goodrich engineers will be glad to send you full details or come to your plant to make recommendations. No obligation, of course. Write: *The B. F. Goodrich Company, Industrial and General Products Division, Akron, Ohio.*

Paper Mill Rolls BY

B.F.Goodrich

FIRST IN RUBBER

TIMELY HELP FROM TITANOX RESEARCH



HOW TO GET

50,000,000 more

INCHES OF PRINTING AREA

PER TON OF PAPER

Light-weight, 20-pound coated paper, pigmented with TITANOX, can provide 50,000,000 *more* square inches of printing area per ton than ordinary 40-pound stock with no increase in show-through, no loss in brightness or opacity. Such processing provides a practical way to utilize paper making materials more effectively.

In the interest of better paper making, TITANOX research has developed titanium dioxide pigments specially suited for whitening, brightening and opacifying paper and has established definite recommendations for their use. For example, TITANOX-A-WD, the water-dispersible titanium dioxide and the rutile-calcium pigment TITANOX-RCHT are suggested for use in coatings. TITANOX-A-WD is also specially recommended for addition to the beater. Each of these pigments has the fine and optimum particle size which imparts maximum whiteness, brightness and opacity . . . ensures easy mixing and complete dispersion.

Our Technical Service Department is always ready to help you make the best use of TITANOX pigments. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; Boston 6; Chicago 3; Cleveland 15; Los Angeles 22; Philadelphia 3; Pittsburgh 12; Portland 9, Ore.; San Francisco 7. In Canada: Canadian Titanium Pigments, Ltd., Montreal 2; Toronto 1.

8814

TITANOX

the brightest name in pigments

TITANIUM PIGMENT CORPORATION

Subsidiary of NATIONAL LEAD COMPANY

Paper TRADE JOURNAL

VOL. 133 AUGUST 10, 1951 No. 6

FEATURES

Bowaters Files Charter 11

Ketchikan's Plans 11

Engineering Conference Program 18

Government Gospel 21

Motor Control—Rotating, Electronic and Magnetic 24

Index, Feature Articles 32

DEPARTMENTS

Our Business	7	New Equipment	36
Trends	9	Prices	38
News of the Week	11	Materials	40
People	16	New Literature	42
Associations	18	European Spotlight	43
Industrial Section	24	Obituaries	47
Patents	34	Production	47
CLASSIFIED ADVERTISING	49	ADVERTISERS' INDEX	60

PUBLISHED EVERY FRIDAY

LOCKWOOD TRADE JOURNAL CO., INC., 15 West Forty-Seventh Street, New York 19

Phone: PLaza 7-2270

GEORGE E. LOCKWOOD, President and Treasurer — ARTHUR E. GORDON, Vice-President — FREDERICK E. WINKLER, Secretary

HENRY J. PERRY, Editor — R. E. THUEMMES, Managing Editor

E. P. McGINN, Industrial Editor — E. P. NUTTALL, Associate Editor

Entered as Second Class matter at the post office at East Stroudsburg, Pa., under Act of Congress of March 3, 1879. Publication Office at Lockwood Trade Journal Co., Inc., 54 N. Crystal St., East Stroudsburg, Pa. Printed in U.S.A.

Copyright 1951 by Lockwood Trade Journal Co., Inc.

PAPER TRADE JOURNAL established Feb. 17, 1899, combined with PAPER TRADE JOURNAL, Nov. 16, 1899. PAPER established Sept. 21, 1910, combined with PAPER TRADE JOURNAL, February 19, 1936.

All rights to the above titles reserved. Contents of PAPER TRADE JOURNAL, including all articles, illustrations, etc., are copyrighted and may not be reprinted except by permission.

PAPER TRADE JOURNAL is indexed in Industrial Arts Index and Engineering Index. Also publisher LOCKWOOD'S Annual DIRECTORY OF THE PAPER AND ALLIED TRADES.

NEXT WEEK

S. C. Drives—How to drive them and not let them drive you. Charles Beck presents the facts in "Super Calender Drives" to get maximum production, high quality, and proper power requirements.

REMEMBER THESE DATES

SEPT. 6-8: American Pulp & Paper Mill Superintendents Assn., New York, Canadian Division, meeting at Saranac Inn, Saranac, N. Y.

SEPT. 14-15: American Pulp & Paper Mill Superintendents Assn., Northeastern Division, meeting at Poland Spring House, Poland Spring, Maine.

SEPT. 14-15: American Pulp & Paper Mill Superintendents Assn., Northwestern Division meeting at Northern Holiday Resort, Manesseco, Mich.

SEPT. 16-19: American Institute of Chemical Engineers, Regional Meeting, French Lick, Ind.

SEPT. 20: American Pulp & Paper Mill Superintendents Assn., Michigan Division, Fall Meeting at Hotel Harris, Kalamazoo, Mich.

SEPT. 26-28: Alkaline Pulping Conference of the Technical Assn. of the Pulp and Paper Industry at the John Marshall Hotel, Richmond, Va.

OCT. 10-12: American Pulp & Paper Mill Superintendents Assn., Southern and Southeastern Div'ns., George Washington Hotel, Jacksonville, Fla.

OCT. 15-18: 6th Engineering Conference, Technical Assn. of Pulp and Paper Industry, General Oglethorpe Hotel, Wilmington Island, Savannah, Ga.

OCT. 29-31: National Foreign Trade Convention, Waldorf Astoria, New York City.

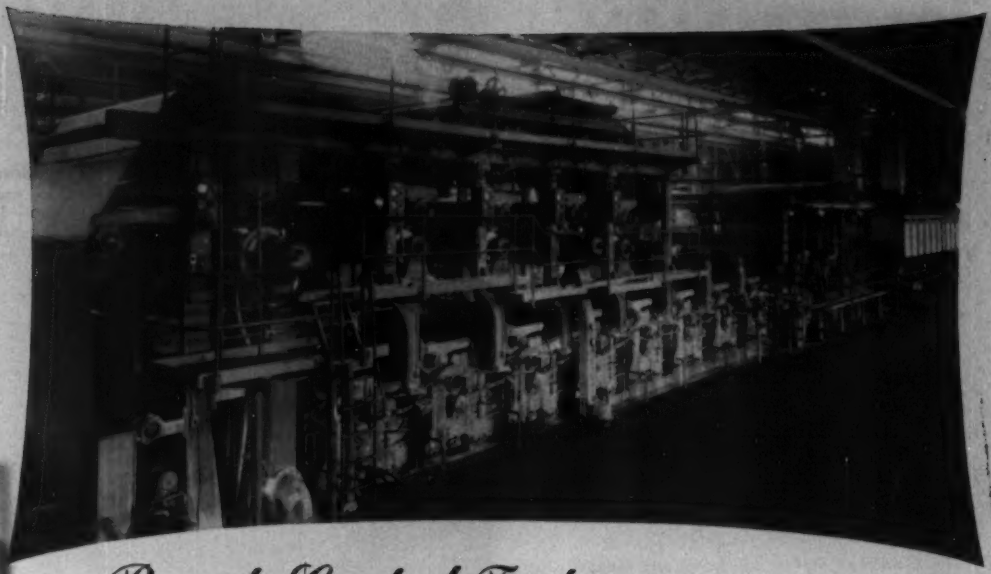
SUBSCRIPTIONS

Payable in advance—Single Copy 15c—U. S. $5.00 per year— U. S. Possessions $7.00 per year.

Canada $7.00 per year—Canadian Funds acceptable.

Latin American Countries $15.00 per year.

All Other Countries $20.00 per year.



Remote Control Features on Black-Clawson Machines

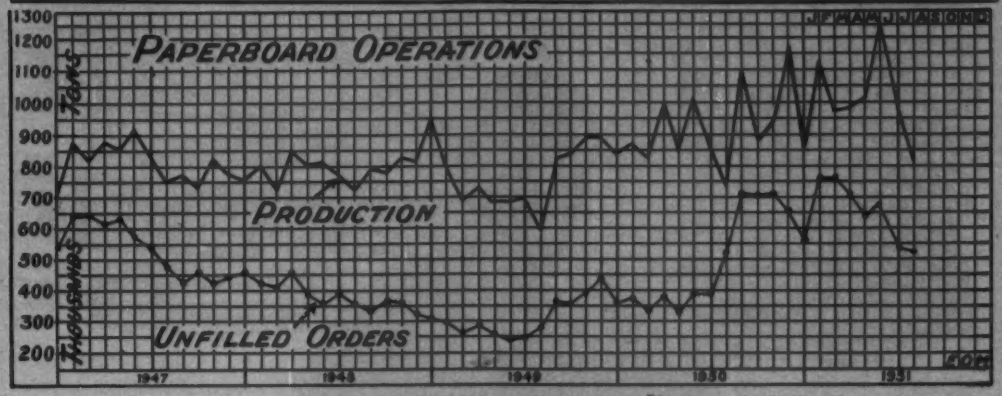
A dominant characteristic of every post-war Black-Clawson machine is the incorporation of remote control features wherever possible, to wit:

1	White water pump valves remotely controlled.	8	Push button control of calender loading.
2	Headbox liquid level control automatic.	9	Primary and secondary arms on uniform speed reels remotely controlled.
3	Remote control of press roll loading.	10	Cutter pinch rolls air-operated.
4	Push button operation of felt stretchers.	11	Tension on unwind push button controlled.
5	Clutches air operated.	12	Automatic transfers on rope carriers.
6	Push button operation of belt shifters.	13	Air-operated brakes on dryer sections.
7	Push button operation of calender lifts.	14	Air-operated wire guide features automatic alarm and/or/stop.

Make your new machine a Black-Clawson. There is nothing more advanced on the market—in general design or in application of remote control features.

The Black-Clawson Co. . . . Hamilton, Ohio

Divisions: SHARTLE BROS. MACHINE CO., Middletown, Ohio • Western Sales Office: Mayer Bldg., Portland, Oregon
DILTS MACHINE WORKS, Fulton, New York • Southern Sales Office: 937 Coventry Road, Decatur, Georgia
Associate: THE ALEXANDER FLECK LTD., Ottawa, Ont. • Subsidiary: B C INTERNATIONAL LTD., Grosvenor House, Haymarket, London, S. W. 1, Eng.



Brief of Important Figures

Source		WEEK ENDING July 28, '51	June 30, '51	July 29, '50
APPA	Paper Production Percent Capacity[a]	100.1	95.7	99.9
	Unbl. Kraft Paper Production Percent	97.0	102.3	96.7
NPA	Paperboard Operating Ratio Percent Inch Hours	97	103	96
		June 1951	**May 1951x**	**June 1950**
APPA	Paper Production[a] (Except Newsprint and Building Papers) ..... Tons	859,000	909,757	788,500
	New Orders ..... Tons	861,000	887,883	812,800
	Unfilled Orders ..... Tons	995,000	997,925	565,565
	Shipments ..... Tons	861,000	902,729	786,300
		July 1951	**June 1951**	**July 1950**
NPA	Paperboard Production ..... Tons	815,547	977,214	745,255
	New Orders ..... Tons	814,729	873,807	890,890
	Unfilled Orders ..... Tons	537,591	547,963	524,391
	Our Customers Activities Index[1]	**Latest Mo.[e]**	**Previous Mo.[e]**	**Year Ago[e]**
FRS	Manufactures Total Index	233	232	203
	Durable Mfg. Index	278	278	232
	Nondurable Mfg. Index	196	195	180
	Chemical Products Index	297	297	255
	Mfg. Food Products Index	159	153	157
	Printing and Publishing Index	181	188	169
ODC	Magazine Advg.-Printer's Ink Index	355	338	324
	Retail Sales Combined Adjusted Index	347.6	343.3	315.0
	Drug Index	229.8	231.4	215.9
	General Merchandise Group Index	334.0	326.8	306.6
	Grocery and Combination Index	442.5	437.7	379.1
	Prices Index			
BLS	Consumers Price Index[1]	185.4	184.6	169.3
	Wholesale all Commodities[2]	182.8	183.5	155.9
	Wholesale Foods[2]	187.2	185.7	159.9
	Commodities other than Farm Products and Foods[2]	171.5	172.4	147.6
	Wholesale Pulp and Paper[2]	196.2	196.2	155.4
	Purchasing Power of Dollar, Consumers Prices[1]	53.9	54.2	59.1
	General Activity Index			
FRS	Mfg. Production-Worker Payroll	429.4	433.3	348.0
	Unemployment Compensation Initial Claims (M)	908	983	1,367
	Miscellaneous Carloadings–Thousands of Cars	1,582	1,580	1,423
	Electric Output (Million KW hr.)	35,136	34,431	31,486
PTJ	Average 32 P & P Common Stocks as of August 4	$39.12	$37.75	$29.97

[1] 1935-39=100 Unadjusted Index
[2] 1926=100
[a] Now 6-7 day basis.
[c] For Five Weeks.
[e] For details see APPA Monthly Statistical Summary—April 1951 Estimated Figures
[e] Latest Month Available on Request
[x] Revised figures.

VALUE in a fine product reflects the experience and skills of its makers.

VALUE in Fourdrinier wires is a matter of record . . . paper quality and production records in mills throughout America reflect the fact that *Appleton Wires are Good Wires!*

APPLETON WIRE WORKS, INC.
APPLETON • WISCONSIN

Paper TRADE JOURNAL

TRENDS

Office of the PAPER TRADE JOURNAL
Wednesday, August 8, 1951.

The only significant change in this dull summer market is the continous softening of the waste paper prices. Other raw fibrous materials—cotton cuttings, rags, bagging, and, to a smaller extent, wood pulps, also are being depressed by much lighter mill demand.

Mill Consumption Dips

True, it had been anticipated that the floor of the waste paper market would sag under the weight of supply; that August 1 prices would begin to show the altered demand for pulp substitutes, as well as for the low grades whose bulk is bulging the warehouses. Mill buying, however, fell off 27 percent from the second quarter's weekly average, and added thereby to the market glut.

Average weekly consumption during the first three weeks of July, according to the ECC's bulletin of July 31, dropped 38 percent from the weekly average of eastern mills during the second quarter. During the three weeks, however, these mills bought 32 percent more than in 1950's three weeks, and consumed 20 percent more, thus topping the 1947 peak record for both purchases and consumption by 9 and 2 percent respectively.

The drop in mill demand when the market was in flood supply amounts to over-production. Burning of low grades to remove the fire hazard and make room for incoming tonnages is talked of, but few view the condition as that grave.

N. Y. Corrugated Tumbles

New York and Philadelphia markets were particularly affected by strikes at a large New Jersey paperboard mill, and by withdrawal of marginal tissue mills from the market. Old corrugated in New York took two $10 drops during the week ended August 4, and at press time was quoted at $37. Token decreases of $2 were made on *mixed* and *news* in all principal markets. In some areas, prices were described as "hypothetical"—because of lack of buying.

White news blanks and flyleaf shavings also dipped $10 in New York; white ledger was easier, and an undertone of softness was noted in hard and soft white shavings.

Though new kraft cuttings are down about $20 from the Spring highs, these grades are holding where others are softening. Reported however is an easing in new kraft corrugateds in New York, as a result of the sizable tonnages of unbleached kraft pulps being offered by southern integrated mills through the pulp set-aside order, M-72. Where mills have commitments which will bring their September 1 pulp inventories to the 45-day limit, they are known to be accepting some kraft cuttings when the price is attractive and quality right.

Philadelphia's market shows dips of $5 in *mixed* and *news*, $18 dip in old corrugated, $10 in white news and flyleaf, $15 in supersoft white shavings, $5/15 in tab. cards, $10 in mixed ledger, $7 in repacked books.

Boston, to press time, was maintaining a $47 price on old corrugated, but showed an easing from GCPR levels of $5/10 a ton. Further drops are anticipated in that area also.

In addition to the $2 drop on *news mixed* and corrugated, Chicago's market showed an easing in old kraft cuttings of $5 a ton, $10 a ton on *white news* and groundwood shavings, $15 on new manila envelope cuts, $3 on No. 1 book, and $5 on repacked heavy book. (See *Prices* page.)

Cottons and Bagging Weaker

Mill buying prices for new cotton cuttings were named at a level under OPS ceiling (CRP 28) during the week by a major consumer. Prices reported were on a delivered basis with no commissions: No. 1 washables, $6.50; cottonades $7.50; corduroys, $7.50; dark colored underwear cutters, $8.00. OPS prices for these grades with 7½ percent dealer commission are $6.50, $8.00, $8.00, $9.50.

Expected by the dealers in view of the sustained demand of paper mills is that prices will hold generally at OPS levels, and mill demand expand by late summer.

Availability of cotton linters at declining prices should however affect the price of new cuttings, as well also the heavy cotton crop. According to the Department of Agriculture, demand for linters is sluggish and prices continue to decline. In the New Orleans cotton market, it was estimated that some 3 million bales of raw cotton would go under government loan at an expected price of 32 cents a pound.

Bagging shows signs of further softening in the important Boston market. Prices quoted for the week ended August 4 were $5.00/5.50 for foreign and domestic gunny, $4.50/5.00 for paper mill tares, $4.75/5.25 for foreign scrap, $5.00/5.50, domestic scrap, $6.00/7.00 for Australian wool pouches, all on dealer basis, f.o.b. Boston.

WORLD TRADE PROSPECTS

Torquay, Tariffs and Trade

Like most other segments of U.S. business, the pulp and paper industry has given little attention to the matter of international trade since Korea. Straining as it has been to meet demand of U. S. consumers and snowballing requirements of the Defense Program, the industry as a whole has been able to do little more than keep a minimum interest in its foreign markets. Even where international trade had already been developed, exporters have found it extremely difficult to get sufficient pulp, paper, boards or products to keep the flame alive.

Far-sighted producers, however, have fought to keep in touch with international demand, knowing that should a buyers' market develop while industry is at capacity production, world markets could become important to U. S. business.

Torquay and tariff concessions on paper and paper products have drawn little attention during this Korean era. What quantities have come into this market on the whole have found ready buyers who could not place their orders with U. S. mills or distributors. Should the market weaken appreciably, imports of competitive papers and products could become a matter for serious price study by the industry.

Reciprocal Trade Act Extended

Under the terms of the Reciprocal Trade Agreement Act which Congress extended for two years to June 12, 1953, the President is allowed to negotiate agreements with other countries, reducing U. S. import duties in return for concessions to the United States. Provided by the bill is that the President shall take action to ban tariff concessions to Russia and her satellites. Imports by the bill are not barred from the U.S.S.R. and controlled areas, but require payment of full 1930 tariff rates on any goods brought in from them.

An "escape clause" in all reciprocal trade requirements would by the measure allow the U. S. to back out of them when the lowered tariff threatens serious injury to a domestic industry. Also contained in the measure is a "peril point" provision which requires the President to explain to Congress any import duties cut below a point which the U. S. Tariff Commission considers injurious to American industry.

In accordance with this agreement, the President last week announced termination of tariff concessions with the Soviet bloc.

—E. P. N.

(To be Continued)

Paperboard Production (Tons)*

	July 28 1951	July 21 1951	July 29 1950	Month of July
Production	231,798	225,732	215,509	815,547
New Orders	181,072	176,346	248,508	814,729
Unfilled Orders	537,591	588,330	524,391	537,891

* Source: NPA.

AT PORT ALBERNI, B.C.

Productive Log Barking

is "teamed up" with **ADAMS** *Automatic* WATER FILTERS

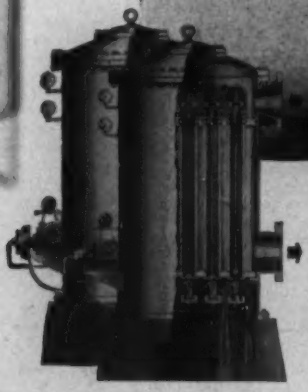
To convert raw water into a tool that blasts bark from logs of any shape or size, *Bloedel, Stewart & Welch* installed a matched team of Adams Automatic Water Filters ahead of their new Hansel hydraulic barkers.

Of critical importance in the barker's continuous, fast production and low maintenance are the films of lubricating water for seal rings as well as for main and thrust bearings. Complete removal of abrasive solids from the Port Alberni water source was necessary if precision-machined surfaces in both the barker and the high pressure pumps were to deliver full performance.

Experiment under actual conditions proved the need for a filter that would not only remove all solids down to 40 microns, but would backwash automatically — a clear case for the Adams AWF Filter with exclusive Adams Poro-Stone Filter tubes. ". . . Adams filters were installed and are performing admirably", states B. S. & W. resident manager.

If you would convert water — your cheapest raw material — into an efficient production tool for pulp, paper, and saw mills, it will pay you to investigate the R. P. Adams line of water filters now.

Send today for new 20-page, file size Bulletin No. 691 on Water Filtration in the Pulp and Paper Industry.



ADAMS AWF WATER FILTERS

HANSEL 60" RING BARKER

R. P. ADAMS CO., INC.

231 E. PARK DRIVE BUFFALO 17, N. Y.

News of the Week

Paper TRADE JOURNAL

BOWATERS FILES CHARTER

DOVER, Del. — Bowaters Southern Paper Corp. has filed a charter of incorporation with the corporation department of the Secretary of State's office here. Capital of the firm was listed at $2 million. Corporation Trust Co., Wilmington, Del., is serving as the principal office.

KETCHIKAN'S PLANS

Lawson P. Turcotte, president of Puget Sound Pulp & Timber Co. and president of Ketchikan Pulp & Paper Co. which received an award of 1,-500 million cubic feet of timber in the Tongass National Forest of Southeastern Alaska on July 27 (reported in the August 3, 1951 issue of Paper Trade Journal) has issued the following outlines of their plans.

The present offices of the Ketchikan Pulp & Paper Co. are at Bellingham, Wash. The company is equally owned by the American Viscose Corp. of Philadelphia, one of the major producers of rayon and cellophane with eight plants located in the East and South; and by Puget Sound Pulp & Timber Co., Bellingham, Wash.

It is proposed to erect at Ward's Cove six miles northeast of Ketchikan, Alaska, a modern pulp mill with an initial capacity of 300-tons daily to produce high alpha pulp suitable for the manufacture of rayon and cellophane products. Engineering and research have been carried on for a considerable time on this project to provide a plant of the latest design and a process best suited for the finished products. This engineering and research is in the final stages but whether construction can be started this fall, or if it will be postponed until early spring has not definitely been decided and no definite announcement can be made at this time.

A certificate of necessity covering the proposed plant has been issued by NPA covering 65 percent of the cost of the plant providing for five-year amortization on this percentage of cost.

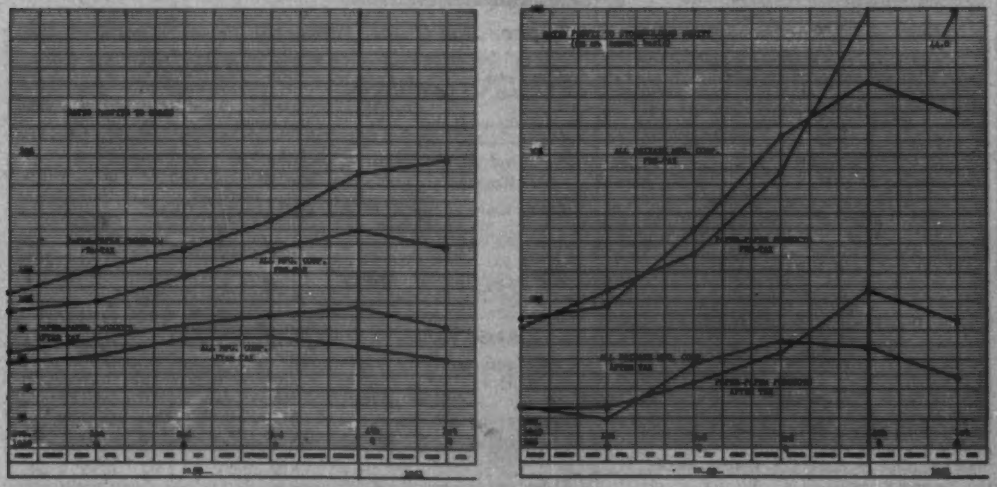
The major part of the mill's products will be contracted for by American Viscose. Puget Sound will be responsible for the construction and operation of the new mill. Barring unforeseen difficulties, it is hoped to have the plant in operation at the latest by mid-1954.

Pending reorganization of the Board of Directors of Ketchikan Pulp & Paper Co., the present officials consist of Fred G. Stevenot, chairman of board of Puget Sound Pulp & Timber Co., and director of Ketchikan Pulp & Paper Co.; Lawson P. Turcotte, president of Puget Sound Pulp & Timber Co. and president of Ketchikan Pulp & Paper Co.; Robert H. Evans, director and legal counsel of Puget Sound Pulp & Timber Co. and vice-president, director and legal counsel of Ketchikan Pulp & Paper Co.

ST. JOE CONTRACT TO TIDEWATER

JACKSONVILLE, Fla. — The St. Joe Paper Co. has awarded construction contract for its pulp mill expansion at Port St. Joe, Fla., to the Tidewater Construction Co. of Norfolk, Va. Some preliminary work has already been started on the $25 million program. A contract for a steel-frame building for box making has been awarded to the Austin Co., Cleveland, through its Houston, Texas office.

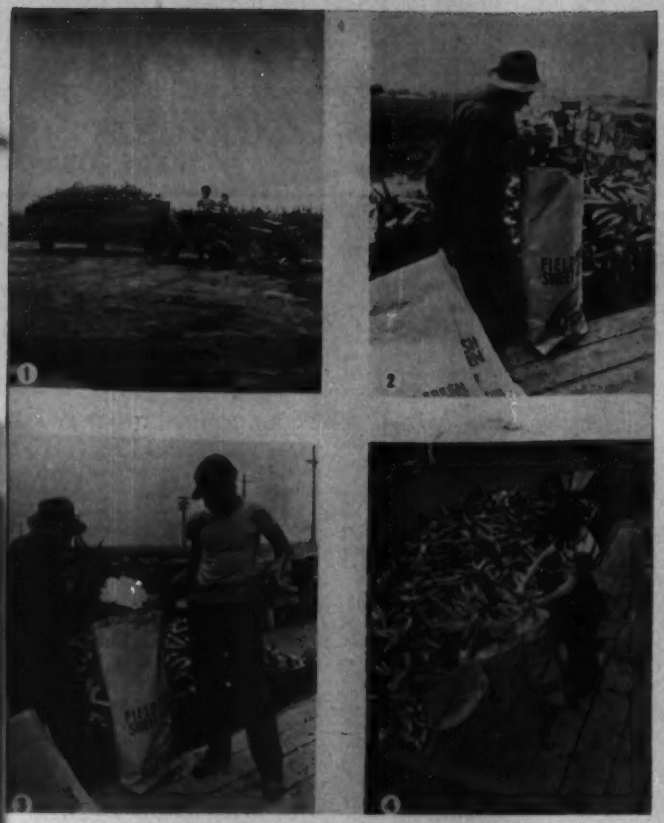
The largest single item of new equipment in the program is a 236-in. paper machine to be built by the Pusey & Jones Co., Wilmington, Del. Contracts for two new turbines and other electrical equipment have been awarded to the General Electric Co.



Source: FTC & SEC.

How Are Your Profits

These two charts show the comparison of the profit ratio between paper and allied products and private manufacturing corporations . . . Paper certainly makes a most favorable showing, largely because of high operating ratio within the period . . . The difference between pre-tax and after taxes demonstrates the effect of the tax bite.



Another New Use For Paper

1. The fresh picked corn is brought in from the field.
2. The corn is placed immediately in the bag in layers of a dozen ears each.
3. Four pounds of ice are put on top of each layer of corn to insure low temperature and keep sugar in corn from turning to starch.
4. The filled and iced bags are then wire tied and ready for their trip to Market.

EXPANSION AT PORT ALICE

Alaska Pine & Cellulose Ltd., has started a $6 million modernization program for the dissolving sulphite mill of the company at Port Alice, B. C.

The program includes a whole log barker and chipping plant, a new modern bleach plant, a bleached pulp screen room, a high pressure 225,000-pound per hour steam boiler, and major changes in the mill water supply. The program now under way will extend over the next two years, and when completed, will make Port Alice one of the most efficient producers of high quality dissolving cellulose on the Pacific Coast.

All planning and engineering is being conducted by the company in its Vancouver office under W. A. Bain, chief engineer, L. C. Kelley, general superintendent, and Les Cleminson, general manager of the cellulose division, formerly of Abitibi Power & Paper Co., Ltd., Toronto.

The program is aimed primarily at upgrading quality to the highest degree combined with the most efficient use of basic raw materials, particularly wood, thus achieving the highest dollar return from the forests.

ANOTHER STORAGE YARD

VIDALIA, Ga. — International Paper Co. has acquired 45 acres of land along the Seaboard Air Line right of way between Higgston and McGregor. W. F. Applebee, of Georgetown, S. C., who has arrived here to be manager of the operations for International, said the tract will be used as a pulpwood receiving and storage yard. According to the Vidalia Chamber of Commerce, it is understood Seaboard will build spur tracks to the site. Three buildings will be erected to house office personnel.

MAY TRANSFER CONTRACT

CHEBOYGAN, Mich. — Following a severe damage by fire of the Lesavoy Industries, Inc., paper mill at Newark, Ohio, recently, I. Lawrence Lesavoy, president of the company, announced that he is considering transfer of a large export newsprint contract from Newark to the Cheboygan mill.

When the fire occurred, preparations were being conducted at Newark, Ohio, to install grinding equipment for the manufacture of newsprint on the 145-inch machine which had been modernized.

Mr. Lesavoy visited Cheboygan to confer with W. H. Kenety, general manager of the plants, and J. J. Arnold, president of the Paper Corp. of America, on the possibility of transferring to Cheboygan the large export contract which would have run two years at the Newark plant.

The major problems standing in the way of this transfer are lack of water transportation facilities and inadequate power supply.

They have decided to make a trial run of newsprint, after which a final decision will be made about transfering the long-term contract to Cheboygan.

WARRENSBURG RAISES WAGES

WARRENSBURG, N. Y. — Announcement is made by the International Brotherhood of Papermakers on July 19 that all employes of the Warrensburg Pulp & Paper Co. have been granted a general wage increase amounting to four cents hourly. The new wage increase went into effect on July 1 following negotiation between company officials and the union. About 90 employes are affected. The agreement also has a clause calling for an additional hourly wage increase of three cents for employes of the night shift and a wage adjustment of ten cents for the operator of the converting room. The new contract brings the hourly base rate fo rcommon labor at the firm to $1.13. The last increase was granted last December when a wage increase of five cents hourly went into effect.

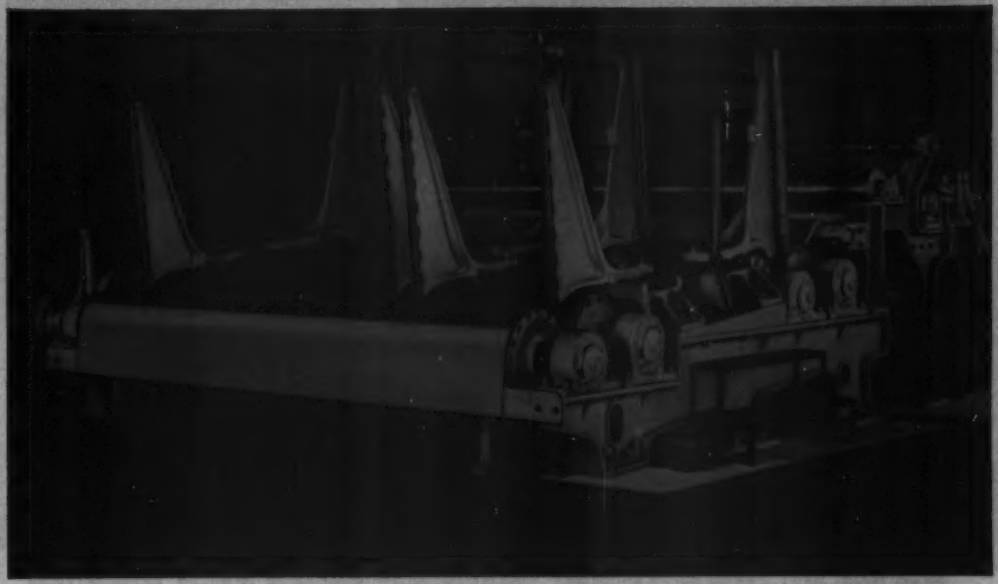
ST. REGIS PROGRESSES

JACKSONVILLE, Fla.—Walter Hohenhausen, project manager for the general contractors, states that construction of the main buildings of the St. Regis Kraft Corp. pulp mill at Eastport is underway and work on the project is expected to be completed within a year.

Materials for the main work are arriving as well as can be expected so that the job can be completed during the first half of 1952.

First unit of the plant to rise above the ground level is the finishing room at the south end of the pulp mill. Forms have been erected and concrete poured for the first and second floors of the section which covers 25,000 square feet.

NEW MOORE & WHITE 4-DRUM WINDER



HERE is an expertly engineered and precision-built *heavy-duty* 4-drum board winder—fast, efficient and dependable to fit the tempo of today's demands and operations. It is operated by a Moore & White mechanical drive, and all moving parts run in anti-friction bearings. It is equipped with M & W shear-cut slitters to insure clean edges to the rolls.

This new Moore & White winder will wind rolls up to 84 inches in diameter. It is available in widths up to the maximum requirements of modern paperboard mills. We can equip it with automatic roll ejectors which permit the completed rolls to be quickly and easily removed from the winder drums without being tended or handled by an overhead crane.

Write or call us today for more detailed information. Our sales engineers will make a prompt survey of your requirements and oversee the installation of the Moore & White winder or other equipment you need for faster, more trouble-free and more profitable operation.

The MOORE & WHITE Company
15th STREET & LEHIGH AVENUE · PHILADELPHIA 32, PA.

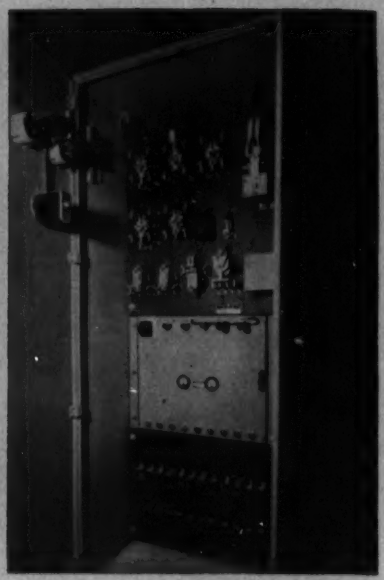
Represented on the West Coast by Dan E. Charles Agency, 618 Jones Building, 1331 Third Avenue, Seattle 1, Wash.

Above—Moore & White 4-drum board winder equipped with Moore & White shear-cut slitters

Above—Moore & White 4-drum winder equipped with automatic roll ejectors

CUSTOM-BUILT MACHINES FOR MAKERS OF PAPER AND PAPERBOARD

A co-ordinated but independent drive for each paper-machine section is provided by G-E multiple-generator sectional drive, which permits each section to operate at top efficiency with fast, accurate control. Shown here from the dry end is the G-E sectional drive at St. Regis Paper Co. in Tacoma, Wash.



Standardized circuits and simplified wiring in control panels permit faster installation and easier maintenance. Photo shows interior of a typical section control panel which includes electronic pre-amplifier, relays, contactors, and resistors.

Get high production

New G-E tensiometer reduces paper breaks, cuts down time!

A revolutionary new development, the G-E paper tensiometer prevents snap-offs caused by excess tension at dryer, calender and reel sections, reduces down time and broke, and helps increase output of uniform-quality rolls. Applicable to new or existing G-E electronic amplidyne sectional drives, it continuously regulates paper tension without damage to the sheet and with greater precision than otherwise possible. Equipment comprises operator's tension controls (top panel in upper photo) and tension head (lower photo). This installation at Ohio Boxboard Co., Rittman, Ohio, was added to an existing G-E drive. When engineered as automatic control into new drive systems, operator's tension controls are combined with the standard section operator's panel. For more data, write for Bulletin GEC-685.

CO-ORDINATED PAPER-MILL DRIVES

Multiple-generator system contributes to easy understanding, simple operation, and quick maintenance. Using a separate generator for each section eliminates the starting generator with its complicated switching that is characteristic of the single-generator system. Shown here, at the Fibreboard Products, Inc., mill at Antioch, Calif., are the G-E amplidyne sets (left) used as exciters for the G-E motor-generator sets (right). The amplidyne, with its fast response and high amplification factor, has been successfully used in over 800 paper-mill applications.

and a uniform sheet!

G-E multiple-generator sectional drive holds draw accurately between sections regardless of load changes—for higher speeds and less broke!

Continuous round-the-clock operation of your paper machine at high speed—to help increase production of uniform-quality paper, paperboard, newsprint or specialty papers—can be yours with a General Electric multiple-generator sectional drive. A growing number of successful installations proves it. And here's why:

Draw between sections is held accurately regardless of load changes, thus minimizing breaks, slack, or weaving at the reel. • Fast, accurate response of section speeds to draw adjustments eliminates guesswork from machine tender's "feel." • Adjustment of one section draw does not disturb other section draws, permitting quicker, more accurate draw changes. • Simple push-button control provides slack take-up for each section without affecting draw adjustments, thus reducing wrinkle-producing slack and calender cuts. • One or more sections may be started without shock to the whole system, and for wash-up and inspection, all sections may be run or jogged simultaneously at low speeds. • Over-all machine speed is easily adjusted from central master control panel.

Find out more about this production-boosting drive, representing more than 40 years of experience with the paper industry's specialized needs. Call your G-E representative today, or write for Bulletin GEA-5036. *General Electric Company, Schenectady 5, N. Y.*

GENERAL ELECTRIC

HOLYOKE HAS STRIKE

Six hundred members of Eagle Lodge of Paper Makers A. F of L. staged a strike on August 1. After lengthy negotiations between the lodge and the management group representing Chemical Paper, Crocker McElwain, American Writing, Parsons and Franklin. An impasse developed over the wage increase and length of contract. Mill owners wanted a one year contract and offered 1½ cent increase, while the union wanted 12 cents and 2 year contract, plus fringe benefits. Apparently some confusion existed over WSB interpretations of the 10 percent ceiling regulation.

As of the morning of August 6 the dispute had been settled, and the mills back in production.

The settlement subject to WSB approval, gives the unions a one year contract, 1½ or 2 cents wage increase, half the cost of Blue Shield and Blue Cross Insurance to be paid by mills, union shop and other customary industry benefits on vacations and call back provisions, etc. Negotiations on wages may be reopened at any time during the year.

Paper mill workers local 226 accepted the provision of the contract, but observed the picket lines.

With this settlement comes to a close the second strike in thirty years, with a total loss of about seven days, a four day shut down occurred in 1942.

MEAD UNDERWAY AT ROME

Rome, Ga. — Al M. Mahrt, vice-president of the Mead Corp. and also president of Macon Kraft Co., announces that initial engineering has been started on Mead's paperboard mill in the Rome area.

Mr. Mahrt announced the purchase of 157 acres adjoining the site for the mill, which is located on the banks of the Coosa River west of this city.

It will be recalled that plans for construction of the mill were announced in Paper Trade Journal last June. At that time it was estimated that the project would cost $30 million.

The Rome mill is expected to employ at least 600 persons and have a payroll of $2 million annually it was stated.

FORM BUFFALO PULPWOOD CO.

Buffalo, Wyo. — Buffalo Pulpwood Co. has filed incorporation papers with the secretary of state. Capitalization is $50,000. The concern will engage in a general lumber, timber and milling business and will manufacture and ship pulpwood, tan bark and other timber products. Lodge pole pine and spruce from the Big Horn national forest will be used in the operation.

BROWN NAMES DILLARD

The Dillard Paper Co., Knoxville, Tenn., has been appointed a distributor of Forward Bond, one of the 100% rag bond papers made by the L. L. Brown Paper Co., Adams, Mass.

FIRE AT ST. GEORGE

St. George, N. B.—Fire destroyed the wood mill of the St. George Pulp and Paper Mill at St. George. A temporary mill is to be erected and the mill will be rebuilt.

PEOPLE

THOMAS M. HOLDEN has just been appointed general manager of National Container Corp.'s new $1 million corrugated box plant in Dallas, Tex. He will be in overall charge of production and sales at the plant now under construction in the Santa Fe industrial area of Dallas.

HARRY S. REGNART, Northern California representative of Oregon Pulp & Paper Co. and Columbia River Paper Mills, was recalled to active duty with the U. S. Army on July 26. Taking his place with headquarters at the company office in San Francisco will be VINCENT M. OTTO. Mr. Otto, for the past several years, has been located at the Portland office.

HAROLD F. CARPENTER, assistant resident manager of Crown Zellerbach Corp., Carthage, N. Y., has been promoted to the position of assistant resident manager of the corporation's newsprint mill at Port Angeles. IVAN E. NICHOLL, converting plant superintendent, has been promoted to the position of assistant resident manager at Carthage, replacing Mr. Carpenter. MILTON SHAMPINE, assistant converting plant superintendent, has been promoted to converting plant superintendent.

FRANK KNIGHT, manager of pulp manufacturing for the Eastern Corp., Bangor, Maine, has just returned from Sweden, where he studied a newly-invented pneumatic barker. Mr. Knight was selected by the Northeast Pulpwood Research Center.

DAVID G. STENBERG, manager of the Chicago District office of National Gypsum Co., has been named general commodity manager, succeeding J. J. RYAN, recently resigned. JOHN C. CALHOUN, formerly assistant manager of the Pittsburgh District sales office, has been assigned to head the Chicago District. Mr. Stenberg will plan and coordinate the distribution of the company's line of Gold Bond building materials.

E. M. LITTLE, of Quebec, president and general manager of Anglo-Canadian Pulp & Paper Mills Ltd., and other pulp and paper companies, has been elected a director of Montreal Trust Co.

ALVER E. PETERSON, secretary, and GEORGE J. WALTERS, assistant secretary and assistant treasurer, have announced their resignation from United Board and Carton Corp. The announcement was made July 24. It was effective immediately.

Mr. Peterson joined United five years ago and was a director until the recent change in stock control which culminated in the resignation of all directors except W. S. Stuhr who was elected president in place of P. M. Loddengaard, resigned. Mr. Walters was made an officer of United in November, 1946, upon joining the organization. Neither Mr. Peterson nor Mr. Walters announced their plans for the future.

G. H. GERPHEIDE, general manager of Hawthorne Paper Co. has resigned. He expects to continue in the paper or affiliated business.

WILLIAM L. KEADY, president of Marathon Corp. has resigned because of management policy differences. D. C. Everest will take over the duties as president and general manager.

K. P. SAGREIYA, Managing Director of the state-controlled newsprint mills (the NEPA Mills, Nagpur) is shortly to undertake a seven week tour of the United States of America, United Kingdom, Canada and Scandinavia at the instance of the Madhya Pradesh government and a Nagpur report adds "to finalise the details in connection with the project and to study the working of similar newsprint mills and, in particular, the work of exploitation and collection of forest raw materials."

K. V. ROBINSON has been appointed sales manager of Willauer Paper Box Co., Spartanburg, S. C. Mr. Robinson, for the past 17 years sales manager of the Atlanta Paper Box Co., is also the vice-president of the Belsinger Container Corp. Mr. Robinson is recognized as one of the outstanding sales engineers in the paper box industry in the Southeast.

CHARLES J. WHITE, has been appointed industrial sales representative for Perkins & Butler, Inc., according to an announcement by Walter G. Butler, president. Mr. White will specialize in the sale and service of military packaging supplies and other paper products of an industrial nature, it was announced.

Watch her reach for the COLORED tissue...

Your tissue products get a quick pick-up in sales volume—when they're in *color*. Because color sets any tissue product apart from a crowd of "look-alikes" . . . makes a *distinctive* difference to the consumer.

Colored facial tissue looks more attractive in a woman's handbag—looks softer, more absorbent. Pastel-shaded toilet tissue blends with bathroom color schemes—becomes a part of the decorative plan. Same goes for paper towels and napkins. Every tissue product becomes more attractive—more desirable—when it's in color.

Your customers are more and more color-conscious. So give them eye-catching tissue products perked up with color—and watch your sales picture brighten! Our Technical Staff will be glad to help you find the right color . . . and the right method of application . . . for any of your tissue products. For complete information, write today to:
E. I. du Pont de Nemours & Co. (Inc.), Dyestuffs Div.,
Wilmington 98, Del.

PONTAMINE® YELLOW 5XG
PONTAMINE® FAST YELLOW RL
PONTAMINE® FAST SCARLET 4BA and 4BS Conc. 150%

PONTAMINE® FAST ORANGE WS Conc. 175%

PONTAMINE® SKY BLUE 6BX Conc. 150%

*REG. U. S. PAT. OFF.

More color makes more business ...for your customers and you

RALPH H. SOGARD has been appointed plant engineer for the Escanaba Paper Co. Mr. Sogard will be directly responsible to management for engineering, maintenance, steam and electric power operation.

He was formerly with the Stanley Engineering Co., Muscatine, Iowa.

W. H. HILDEBRAND, woodlands manager of the Michigan division of the Mead Corp., has been appointed to the corporation's woodlands division with headquarters at Chillicothe, Ohio. He will assume his new duties in August.

He was employed with the Soil Conservation Service at Muskegon, Mich., a few years before joining the Munising Paper Co. He came to Escanaba in December, 1949, to take charge of the timberlands of the Escanaba Paper Co. and the Manistique Pulp & Paper Co., both affiliated with the Mead Corp.

His work in Chillicothe will be associated with wood procurement and forestry problems.

EDWARD S. REID has been appointed assistant general manager of The Continental Paper Products Ltd. He has been with the company for 26 years and was previously Assistant Sales Manager.

B. F. GOODRICH CO. has named Edgar T. Gregory manager of flat belting sales, succeeding A. Clarke Mack, resigned, and has been succeeded as operating manager of the Industrial Products Sales department by Donald E. Schlemmer.

With the company seven years, Mr. Gregory started as a senior sales development man in his division, and had been operating manager since 1945. He is a graduate of Western Reserve University, Cleveland. Mr. Schlemmer started with the company 15 years ago at Plant 4, has been a senior sales development man for the last several years.

LEON L. BERTRAM has been named assistant manager of the Virginia Cellulose plant of Hercules Powder Co., Hopewell, Va. He has been operating supervisor at the plant since August, 1950.

GEO. E. (DOC) SYMONS, managing editor of *Water & Sewage Works*, New York City, resigned that position effective September 15, to devote his energies to the establishment of an independent consulting service.

He is offering technical consultation on plant and laboratory design, research, and operation problems in the field of water, sewage, and industrial waste treatment. For the immediate future, Dr. Symons' office will be located in Larchmont, N. Y., a suburb of New York City.

Engineering Conference Program

The Sixth Engineering Conference of the Pulp and Paper Industry will be held at the General Ogelthorpe Hotel, Wilmington Island, Savannah, Ga., on October 15-18, 1951.

Following is the program:

OCTOBER 14

6:30—9:00 p.m. *Registration* (Sunrise Lounge)

OCTOBER 15

Addresses of Welcome by G. W. E. Nicholson, Union Bag & Paper Corp., Savannah, Ga., and J. E. A. Warner, Southern Paperboard Corp., Port Wentforth, Ga.

Engineering Research and Machine Design

"A Study of the Calender," by Eli Cowan, Consulting Engineer, Montreal, P. Q.

"Capacity of Thickeners," by Robert A. Nivison, Improved Paper Machinery Co., Nashua, N. H.

Data Sheets Session (Crystal Ballroom)

"A System of Gathering Data Sheets," by Henry J. Perry, PAPER TRADE JOURNAL, and R. T. Bingham, Technical Assn. of the Pulp and Paper Industry, New York, N. Y.

Engineering Division Committee Luncheons:

Engineering Division and Machine Design Committee (Wilmington Room).

Mill Maintenance and Materials Committee (Tower Room).

Hydraulics Committee (Whitemarsh Room).

Chemical Engineering Committee (Yacht Room).

Mill Design and Economic Aspects Session

"Pump Difficulties in Pulp and Paper Mills," by Parkman A. Collins and J. G. Rearick, Warren Steam Pump Co., Warren, Mass.

"Mill Engineers Selection of the Paper Machine Drive, Part II," by Roland A. Packard, South Hadley Falls, Mass.

Discussion Sessions

A. Engineering Research and Machine Design (Crystal Ballroom)

"Subcommittee Report on Centralized Control of Stock Systems" by L. A. Moore, American Coating Mills, Elkhart, Ind.

"Subcommittee Report on Study of Hardness of Rubber-Covered Rolls and the Effect on Water Removal," by K. W. Brenner, Eastman Kodak Co., Rochester, N. Y. (There will be a presentation on the use of the Pusey & Jones Plastometer and a discussion of various ways of measuring nip areas so that standards can be established.)

"Subcommittee Report on Methods of Estimating Costs of Engineering Projects and Consideration of Indices that May Be Used," by H. G. Ingraham, Chas. T. Main, Inc., Boston, Mass.

"Subcommittee Report on Felt Tension in the Press and Methods of Its Measurement," by G. E. Clink, Sandy Hill Iron & Brass Works, Hudson Falls, N. Y.

B. Chemical Engineering (Tower Room)

Progress Report on Digester Corrosion.

C. Mill Design and Economic Aspects (Yacht Room)

Discussion of the "Vacuum Drop Leg Problem"

OCTOBER 16

Data Sheets Committee Breakfast (Wilmington Room)

(All Chairmen and Secretaries of Committees are invited to attend this breakfast to discuss ways and means of obtaining more data sheets.)

Hydraulics Session (Crystal Ballroom)

"A Shear Criterion for the Correlation of Hydraulic Behavior of Paper Stock in Pumps, Pipes, Valves, and Flow Meters," by Victor P. Head, Director of Hydraulics Research, Fischer & Porter Co., Hatboro, Pa.

"Interim Report on Pipe Friction Studies at the University of Maine," by Lyle C. Jenness, Head, Department of Chemical Engineering, University of Maine, Orono, Me.

"The Distribution of Velocity Gradients of Paper Stock in Pipes," by E. Hobbs and Geoffrey Broughton, Lowell Textile Institute, Lowell, Mass.

Steam and Power Session (Crystal Ballroom)

"Materials and Design of Piping Systems for High-Pressure and High-Temperature Service," by Eric A. Kerbey, Midwest Piping & Supply Co., St. Louis, Mo.

"Gas Turbine Applications in the Paper Mill," W. C. Bloomquist, General Electric Co., Schenectady, N. Y.

Engineering Division Committee Luncheons:

Steam and Power Committee (Whitemarsh Room).

Electrical Engineering Committee (Tower Room).

Drying & Ventilating Committee (Yacht Room).

Materials Handling Committee (Wilmington Room).

Electrical Engineering Session (Crystal Ballroom)

"The Power Requirements of Fourdrinier Sections," by W. Mikelson, General Electric Co., Schenectady, N. Y.

(Continued on page 45)

IMAGINE...

America without paper!

No more paper or paperboard! Not a single shipping carton or a scrap of paper for vital records and communications! Overnight, America's military effort would bog down... the nation's strength and security would be imperiled. Imagine the chaos on homefront and battlefront... without letters, orders, bulletins, plans or maps. No cartons... no wax or waterproof paper... no wrapping paper... no special paperboard containers to protect military supplies from rot or rust... *Unthinkable?* Don't take paper for granted. Anything so basic and essential should be safeguarded. America *depends* on paper! Use it wisely... protect its production...keep America strong.

America depends on PAPER

PREPARED IN THE PUBLIC INTEREST BY BELOIT IRON WORKS, BELOIT, WIS.
MAKERS OF HIGH-SPEED, HIGH-PRODUCTION PAPER MACHINERY SINCE 1858

CAN YOU USE REPRINTS?

GOVERNMENT GOSPEL

Export Price Regulation C.P.R. 61

Woodpulp is exempted from this order, Paper is not.

The Export Price Regulation divides exporters into two classes. Merchant-exporters, who purchase at domestic ceiling prices and sell for export, commodities purchased by them for their own account, and a producer-exporter who produces the commodities he exports or sells for export.

The formula to arrive at ceiling export prices for a merchant-exporter shall be domestic ceiling price of the supplier at the point of delivery plus a percentage mark-up used in the base period of January 1, 1949, to June 30, 1950, plus the cost of exportation *actually incurred* in connection with such sales.

The formula for producer-exporters shall be the domestic ceiling price at the point of delivery to the largest class of domestic purchasers plus the export percentage mark-up used during the base period of January 1, 1949, to June 30, 1950, plus the cost of exportation *actually incurred* in connection with the sale.

For calculation of the base period percentage mark-up, you will determine from your records a representative calender quarter of the base period. You will determine the total dollars sales value of all such sales for each commodity within the base period then select from such sales, any sale or sales which accounted for, at least, 25 percent of the total dollars volume. Then calculate the weighted average percentage mark-up reflected in such sales during the base period, above your base period selling price. The result is your percentage mark-up of the commodity. Thus, if you had, during the base period, a domestic selling price of $200 per ton, plus a $24 a ton export mark-up, plus a $26 ton cost of export, giving you an export sales price of $250 per ton, then 12 percent would be the export percentage mark-up over the cost of the domestic selling price.

Your ceiling export price under C.P.R. 61 might work out. For example; Your domestic ceiling price is $250 plus $30 (12 percent calculated weighted export mark-up percentage) plus $29 (current actual cost of exportation) or a total of $309.

If you are a producer-exporter and it was your customary practice during the base period not to make an export mark-up charge you cannot do so now under this regulation.

If you are a producer-exporter and it was your practice during the base period on sales to merchant-exporters to charge an export mark-up over your domestic price you may continue to charge this mark-up providing you secure approval from OPS.

You must advise the Import-Export Branch OPS of your calculated percent mark-up.

Book Paper Ceilings

Members of the Book Paper Industry Advisory Subcommittee at their fifth meeting with OPS officials endorsed proposals for a tailored regulation for their industry spelling out dollars-and-cents ceiling prices for six or seven key grades of book paper.

Prices for other grades and weights, and variations in packaging, cutting, finish, etc., would be established by customary differentials.

It was proposed that spelled out ceilings be based on ceilings filed by individual manufacturers under CPR 22, the Manufacturers' General Ceiling Price Regulation.

Committeemen suggested that spelled out ceilings be fixed at levels that would be equal or greater than individual ceilings on the bulk of the production in each key grade.

Analysis of price data submitted to OPS showed that ceilings determined in this manner would average several per cent higher than weighted averages of CPR 22 ceilings. It was shown that weighted averages of CPR 22 ceilings on the key grades represented increases of about 4 to 10 percent over average prices under the General Ceiling Price Regulation, GCPR.

A parallel study showed that if the cut-off date for all allowable cost increases under CPR 22 was advanced to July 1, 1951, ceilings would be slightly lower than those arrived at using the various earlier cut-off dates specified in CPR 22. Increases over GCPR ceilings under this calculation would average from about 3 to 9 percent.

Basic grades for which it was proposed to spell out prices are: No. 2 Enamel 70 lb., Enamel 45 lb., A Grade EF Untrimmed 50 lb., M.F. Litho 50 lb., No. 2 Offset 55 lb., Envelope 20 lb., and Tablet 16 lb.

Committeemen discussed the possible effects of the new Congressional legislation extending price control through the current fiscal year. The opinion was expressed that the new legislation would effect little practical change in the application of price control to their industry.

Members of the subcommittee agreed to meet again August 15 and suggested a meeting of the full committee the same day.

The meeting was conducted by Daniel H. Keck, industrial consultant for groundwood and book papers. Other OPS officials present were: Rufus I. Worrell, chief of the Pulp, Paper and Paperboard Branch; Carlton F. Diskin, Forest Products Division counsel; Florence de Haas Dembitz, counsel; John H. Vogel, economist; Charles J. Grant, industrial consultant for writing and other fine papers; Guy C. Jones, Office of Accounting, and Walter R. Moulton, Office of Advisory Committees.

Members of the subcommittee present were: R. M. Beckwith, Crocker, Burbank Papers, Inc.; Wiley L. Jennings, West Virginia Pulp & Paper Co. F. H. Murtfeldt, Consolidated Water Power & Paper Co.; Dwight L. Stocker, Michigan Paper Co. of Plainwell; W. H. Wilcox, S. D. Warren Co.; Harold Holden, Oxford Paper Co.; and Paul Mahony, International Paper Co.

Groundwood Ceiling Prices

Members of the Groundwood Specialty Papers Industry Advisory Committee at their fifth meeting with OPS officials agreed on six key grades of paper on which it is proposed to spell out dollars and cents ceiling prices in a tailored regulation for the industry.

The key items are: A Offset No. 2, No. 2 Groundwood Hanging Paper, Groundwood Carbonizing Paper, B 1 Groundwood Converting Paper, A 1 Printing Paper and 45 lb. Enamel.

Committeemen proposed that the spelled out prices be worked out from ceilings reported by the industry on Forms 8 under CPR 22, using what was described as a "bulk line" technique. The bulk would demarcate a ceiling price with respect to each grade at a level that would be equal to or greater than the individual manufacturer's ceiling on the bulk of the production in that grade.

OPS officials reported that not enough Forms 8 had been received from the industry to date to make such calculations, and committeemen were urged to expedite their forms.

It was agreed the committee would meet again August 16 at 9:30 a.m., by which time it was hoped that sufficient information would be at hand to work out the bulk line level of prices on the key items.

Ceiling prices on other weights and grades, and variations in finish, tint, sizing, packaging, trimming and other particulars, would be determined by customary differentials.

The meeting was conducted by Daniel H. Keck, industrial consultants for groundwood and book papers.

Members of the committee present were: E. J. Doonan, Gould Paper Co.; Robert Faegre, Minnesota & Ontario Paper Co.; Paul Mahony, International Paper Co.

Jobbers Report Increased Sales

WASHINGTON, D. C. — Paper and related products wholesalers' busines in the first 6 months of 1951 rose 39 percent over the same period a year earlier, the Census Bureau reported this week.

June sales declined 3 percent from the previous month, but remained 23 percent above those a year earlier. Inventories rose 4 percent in June

over May, and 12 percent from a year before.

New England wholesalers reported sales for June aggregating $338,000, off 4 percent from May, but 22 percent above those in June, 1950; sales for the half year were 38 percent higher than in the corresponding 1950 months.

Middle Atlantic states wholesalers' June total was $2,927,000, down 6 percent from May, but 21 percent above June, 1950. Sales for the first 6 months of 1951 were up 46 percent.

South Atlantic states reported a June total of $700,000, up 3 percent from May, and 34 percent better than a year before. Sales for the half-year were up 45 percent over 1950 in the same months.

In the east north central states, comprising Wisconsin, Michigan and adjoining states, sales for June totaled $3,466,000, a decline of 9 percent from May, but 22 percent higher than a year earlier, and for the half-year, up 37 percent.

Pacific states reported a June total of $1,059,000, up 34 percent each for June over May and for the half year, and 33 percent over June, 1950.

Amended M-67—Converted Aluminum Foil

As of July 27, M-67 is amended to cover the conversion of aluminum foil, exemptions from this amendment are foil used for insulation, cap liners or other packaging closures.

The limitations per average quarterly quantity are:

1. Antibiotics—unlimited
2. Hydroscopic drugs
   Medical supplies
   Photographic films etc.—90 percent
3. Bakery goods, gum, confections, ice cream, cigarettes, tobacco.—65 percent
4. Other packaging material for protective purposes—65 percent
5. Household, (except house freezer).
   Carton, (except protective).
   Florist, gift wrapping—50 percent

Water Carriers Can Increase Rates

Contract water carriers engaged in coastwise transportation of bulk phosphate rock, sulphur and soda ash may increase their rates to conform with a schedule used by the War Shipping Administration.

New NPA Post for M. B. Garber

The National Production Authority has appointed M. B. Garber, Director of Sales of The Thew Shovel Co., Lorain, Ohio as Director of the Construction Machinery Division of N.P.A. of which he had been a consultant for the past six months on an on-call basis. Mr. Garber headed up the Construction Machinery Division of the W.P.B. during World War II.

Canada May Join In Fire Protection

WASHINGTON, D. C. — House and Senate bills have been introduced to grant Congressional consent to participation of certain Canadian provinces in the Northeastern Interstate Forest Fire Protection Compact.

4th Quarter CMP Allotments

The allotments of controlled materials of interest to the Pulp and Paper Industry are:

Containers and Packaging	
Steel	1,615,216 tons
Copper	271,000 pounds
Aluminum	17,900,000 pounds
Industrial Facilities Bureau	
Industrial and Commercial Construction	
Steel	653,725 tons
Copper	7,100,000 pounds
Aluminum	22,000 pounds
General Industrial Equipment	
(Pulp and Paper Machinery is in this pool)	
Steel	868,500 tons
Copper	61,020,000 pounds
Aluminum	14,700,000 pounds
Printing and Publishing	
Steel	3,788 tons
Copper	1,702,000 pounds
Aluminum	375,000 pounds
Pulp, Paper, Paperboard	
Steel	1,000 tons
Copper	5,000 pounds
Aluminum	50,000 pounds
Allowance for M.R.O.	
Steel	1,312,150 tons
Copper	26,884,000 pounds
Aluminum	3,050,000 pounds

	Steel	Copper	Aluminum
Estimated in	000 tons	000 lbs.	000 lbs.
Total Supply	21,336	1,166,000	598,000
Total Allotment	24,058	1,325,941	681,475

Britain's Naval Stores Slow Up

WASHINGTON, D. C. — A second-quarter 1951 lull in United Kingdom's naval stores market is reported by the Commerce Department.

First quarter buying as well as for the last months of 1950 was generally active, it was recalled, due to stimulated defense production and replacement of raw materials shortages.

Now, according to trade reports quoted by an American source in London, little activity in rosin is anticipated in coming months as most consumers are well stocked and showing little interest in new orders. Turpentine has been more difficult to obtain, it was reported, but due to users' stocks on hand, mid-year buying has been quiet, and a tendency was noted to postpone new purchases in anticipation of price reductions.

Newsprint for Greece

WASHINGTON, D. C.—Paper and related products, exclusive of newsprint, totaling $250,000 was authorized for procurement on behalf of Greece, by the ECA. Delivery terminal date is December 31, 1951.

Canadian Carloadings

OTTAWA—Car loadings on the railways from beginning of this year until July 21 of woodpulp and paper rose to 142,028 cars as compared with 129,390 cars a year ago in this period, according to the latest nationwide survey by the Canadian Government.

Chemical Meeting

The shortage of sulfur and sulfuric acid appears to be the knottiest problem facing the chemical industry, the NPA and the Chemical Industry Advisory Committee agree.

Shortage of steel for expansion of chemical producing facilities and the growing impact of defense-rated orders are also causing some concern, industry representative indicated.

There are other material shortages and other problems, but in most of these solutions seem to be in sight, generally through increased production of scarce materials used by manufacturers of chemicals.

In discussing the shortage of sulfur and sulfuric acid, some committee members said their companies had been compelled to reduce production because of their inability to obtain these scarce materials. Most committeemen, however, said that although the situation had been a "touch-and-go" one, they have managed to get all the sulfur and sulfuric acid they needed.

NPA said the Defense Production Administration is considering a program for the distribution and uses of sulfur.

Other shortages discussed included Chlorine. There has been a chronic shortage here, but a 50 percent increase in production capacity will do much to ease the situation, NPA said.

NPA also said that dye production has been hobbled somewhat by the scarcity of sulfuric acid and that the steel shortage has caused a tight situation in the steel drums, tanks and other types of chemical containers.

Regarding the impact of defense-rated orders, NPA said it was seeking a method of removing chemicals from DO application.

C/N Approved During Week Ending July 27

Company	Product	Applied For	Eligible	Per. Certi.
Brown Co. Berlin, N. H.	SO2 Gas	$ 767,240	$ 548,800	80
St. Regis Paper Co. Howland, Maine	Kraft Pulp	600,000	393,000	65
Mosinee Paper Mills Co. Mosinee, Wis.	Pulp	2,000,000	700,000	60
Fibreboard Products, Inc. Antioch, Calif.	Paperboard	2,399,261	1,439,404	30
Ketchikan Pulp & Paper Co. Ketchikan, Alaska	Wood pulp	40,450,000	36,663,500	65

"Tycol Acylkup runs bearings cooler.... slashes repair costs... steps up production"

A fact! Tycol Acylkup Grease is an expertly blended calcium soap and specially selected cylinder oil stock combination that assures long bearing life . . . less down time loss . . . lower maintenance costs . . . lower output cost per pound of grease. It is available in a number of penetration ranges to permit application indoors or out— under all weather conditions.

Ask your nearest Tide Water Associated office for complete information. Call today.

TYCOL
INDUSTRIAL LUBRICANTS

Boston • Charlotte, N. C. • Pittsburgh
Philadelphia • Chicago • Detroit
Tulsa • Cleveland • San Francisco

TIDE WATER ASSOCIATED OIL COMPANY
17 BATTERY PLACE NEW YORK 4, N.Y.

SEND FOR A FREE COPY OF "TIDE WATER ASSOCIATED LUBRICANIA"

Motor Control—Rotating, Electronic and Magnetic

C. P. Croco[1]

The control of motor speed, and the regulation of this speed once it has been set, have become increasingly important in almost every industry. With increased costs, it has become economically more important that a machine be run at the maximum regulated speed consistent with maintaining the required product quality.

Early motors were inherently constant speed, and in most cases replaced a steam engine. A compromise speed we selected that was satisfactory for most of the work, but was too fast or too slow for some applications. Early d-c motors as well as a-c motors were constant speed devices. It was not until about 1908 that the stabilizing winding was added to the d-c motor, making it suitable for speed adjustment.

A number of ingenious devices have made the inherently constant-speed a-c motor useful for some adjustable-speed applications. However, it is the old reliable d-c motor that is called upon for most adjustable-speed drives.

Defines Speed Control

Speed control is the adjustment of speed by a device such as a rheostat or master switch. For example, a motor may be running at 400 rpm; when you change the speed to 1600 rpm, you are controlling or adjusting its speed. A d-c motor can have its speed adjusted either by changing voltage applied to the armature, or by adjusting the field current. Later we will explain the ranges and limitations of both methods.

Defines Speed Regulation

Speed regulation is the change in speed after it has been set by the speed controller. This may be due to changes in load, changes in voltage, and temperature. For example, the d-c motor mentioned before may have a no-load speed of 440 rpm, but when the load is applied the speed may fall to 400 rpm. This may be caused by the voltage drop in the armature circuit, or by changes in the magnetic flux in the machine. The speed regulation of such motor is said to be 10 percent. Speed regulation also may be due to variation of line voltage and resistance changes in the armature and field circuits due to changes in temperature. Any device or control scheme that compensates automatically for these changes is called a speed regulator.

MECHANICAL FUNDAMENTALS EFFECTING SPEED REGULATION

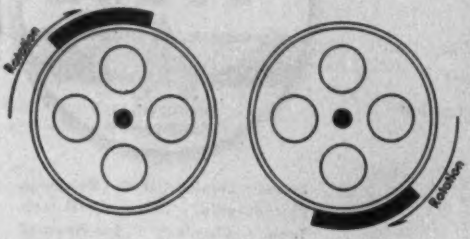
Unbalanced Flywheel

Here are some of the fundamental mechanics of driven equipment that complicate the problem of speed regulation. Consider first the unbalanced flywheel (*Figure 1*). When the unbalanced weight is helping to turn the wheel, it tends to speed up the wheel; and, when the weight is being carried up the other side, it tends to slow down the wheel. Thus, during each revolution, the wheel tends to run faster and slower than desired. If we have a speed regulator on the motor driving this flywheel, it must be fast enough to correct the speed during each half revolution of the wheel. Suppose, however, the regulator is so slow that, by the time it stars to slow the wheel, the unbalanced weight already has reached the bottom and is starting up the other side. The regulator will be slowing down the motor when the wheel itself is slowing down. Such a system is unstable, and occurs when the time constants (speed of response) of the regulator are greater than the mechanical time constants of the equipment. A faster or better regulator must be used, or the inertia of the mechanical system must be changed to increase its time constant.

Practically every piece of rotating equipment has some unbalanced flywheel effect in the system. Before any speed regulator can be applied, it is necessary to analyze the system to see if the time constants of the regulator will allow it to correct this condition.

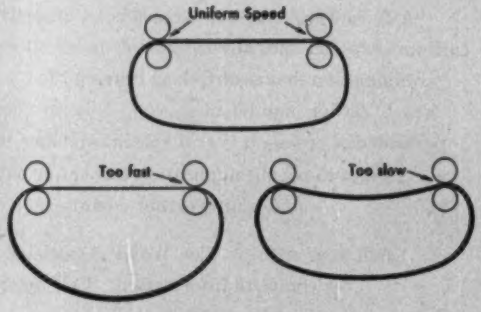
Rubber Band

Consider the case when the drive



Unbalanced Flywheel

Figure 1



Rubber Band

Figure 2

[1] Application and Project Sec., Control Engineering Dept., Westinghouse Electric Corp., Buffalo, N. Y.

another ROSS

New Development

PULP DRYING

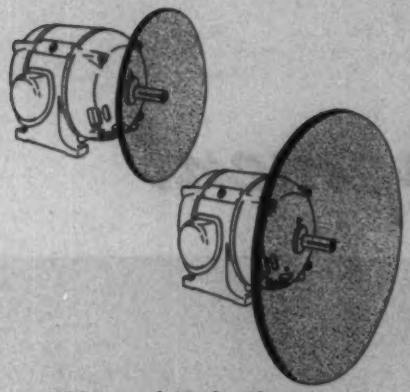
For many years the industry has hoped to overcome difficulties in pulp drying due to internal leakage, soilage, and high maintenance costs. These and other major problems have been solved with the recent introduction of the new ROSS Pulp Dryer. Drying pulp in a continuous operation with externally heated air is now possible—thanks to ROSS engineers—always striving for better methods of producing better products at higher speed and lower cost.

ROSS SYSTEMS

J. O. ROSS ENGINEERING
CORPORATION

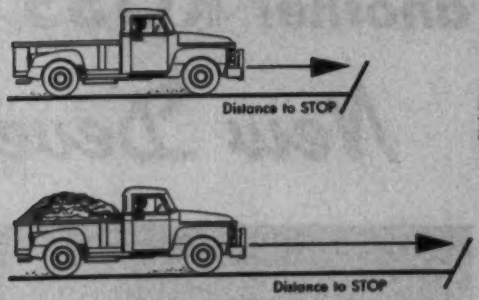
MANUFACTURERS OF AIR PROCESSING SYSTEMS

444 MADISON AVENUE NEW YORK 22, N. Y.



Big and Little Flywheel

Figure 3



Loaded and Unloaded Truck

Figure 4

consists of more than one motor driving equipment working on the same material. This is the case of the rubber band being pulled by two sets of wringer rolls (*Figure 2*). If the speeds of the two sets of rolls are correct, the material will neither be stretched nor will it sag between rolls. Almost all continuous processing lines are of the rubber-band type, with the paper machine as a good example. At the wet end, paper has little if any strength, and can only stand a little stretch. At the finishing end it has more strength, but too much tension may spoil the finish.

Big and Little Flywheel

As another example, consider the case of the big and the little flywheel (*Figure 3*). Many drives take the same size motor to drive them, but the inertia or flywheel effect is different. When running at steady speeds, the difference in inertia does not affect the speed. But, when accelerating or decelerating, the difference in inertia must be compensated for by the speed regulator. An example of such equipment is the paper machine, which consists of relatively low-inertia presses and very high-inertia dryers.

Loaded and Unloaded Truck

Another mechanical change that complicates the problem of the speed regulation is a change in inertia during operation. The sprinkler truck for example starts out loaded and gradually loses its load. The braking effort required to stop it will vary from maximum when loaded to a minimum when it is unloaded. *Figure 4* illustrates the braking of loads with different inertias. In the paper industry, a large roll of paper may be rewound into a number of counter rolls, as commonly used in butcher shops. Each time a small roll is made, the large roll must be stopped and started. The large roll gets smaller and smaller, and the amount of inertia compensation by the regulator must be such that the unwinding and winding rolls will accelerate and decelerate together, without putting too much strain on the paper.

Mechanical Considerations Important

These mechanical considerations become very important on every drive where the material being processed must be carried between pieces of equipment which are driven by separate motors. In some cases, the relative speeds are not too important, since the material can either be stretched or has enough strength to hold the various drives together.

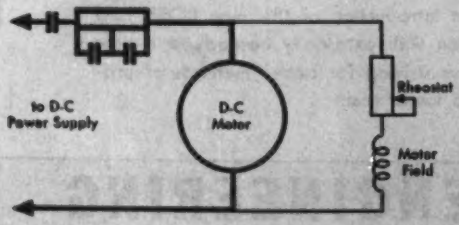
In steel mills, all tandem rolling mills and cleaning or processing lines have these four types of mechanical problems. However, where the material is heavy, the problem may not be important. But, when the material becomes small, as in rod mills, tandem tin-plate mills, and cleaning and pickling lines, the problem of balancing inertias and maintaining tension without stretching becomes very difficult.

In printing, spinning, and paper making, all four must be considered when applying speed regulators.

METHODS OF ADJUSTING SPEED

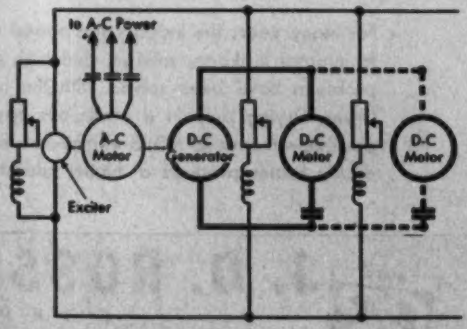
D-C Motor With Rheostat

The simplest means of controlling



D-C Motor with Rheostat

Figure 5



D-C Motor with Motor Generator

Figure 6

FAST'S COUPLINGS *save you money three ways!*

1 Free Service:

When you specify Fast's you get Koppers' valuable free coupling service. If you need a special coupling, Koppers' experienced engineers in many cases can modify a standard Fast's coupling and save you money!

2 Rugged Construction:

Fast's still maintains its original design, without basic change or sacrifice in size or materials. This assures you freedom from needless, expensive coupling failures.

3 Foolproof Design:

Instead of perishable oil seals, Fast's couplings use a permanent metal-to-metal closure. Oil is always maintained at a safe level whether the Fast's is running or standing still.

The past 31 years prove Fast's Couplings earn savings three ways. *First*: Koppers' Engineering Service saves you money by making sure you get the right coupling for your application. *Second*: Because Fast's normally outlast the equipment they connect, you can divide their reasonable cost over 20 years or more to assure lowest coupling cost per year! *And Third*: Fast's Couplings save money by protecting paper mill drives against needless and costly coupling failures. Cases on record prove Fast's have been in continuous service in the paper field, 24 hours a day, 300 days a year for *20 and 30 years* without trouble.

For Jordan, floating shaft or standard applications, specify Fast's and save. To get detailed information, photographs and specifications, write today for your free copy of Fast's catalog.

KOPPERS

FAST'S

THE ORIGINAL GEAR-TYPE

Couplings

INDUSTRY'S STANDARD FOR 31 YEARS

Mail Coupon Today

FOR FREE CATALOG

KOPPERS CO., INC., *Fast's Coupling Dept.*, 278 Scott St., Baltimore 3, Md.

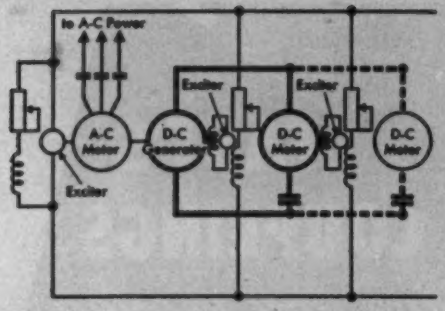
Gentlemen: Send me Fast's Catalog which gives detailed descriptions, engineering drawings, capacity tables and photographs.

Name.....

Company.....

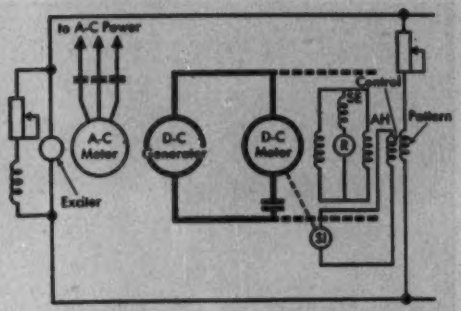
Address.....

City.....Zone.....State.....



D-C Motor with Motor Generator with Exciters

Figure 7



D-C Motor with Motor Generator with Rototrol

Figure 8

the speed of a d-c motor is by adjusting the field current. Speed ranges from 2/1 up to 8/1 on special motors can be obtained by using a field rheostat. *Figure 5* shows the simplest type of resistance starter, with a field rheostat for adjusting the speed. The number of speed steps is limited to the number of buttons that can be put in the face plate of the rheostat. A refinement is the use of two rheostats, one a vernier that covers one or two steps of the larger rheostat.

As the size increases, the size of the rheostat may become so large that it may have to be motor-operated. The cost of such equipment is relatively low, but the maintenance is very high. This scheme cannot be modified to give good speed regulation. The speed regulation is about 10 percent at base speed, and about 25 percent at top speed.

D-C Motor With Separate Motor Generator

When speed ranges greater than can be obtained by a d-c motor with a rheostat are required, it is possible to obtain much wider ranges by using a separate motor generator (*Figure 6*).

While we could adjust the voltage applied to the armature of the d-c motor by means of a resistor, the losses would be large, and the voltage and speed would vary with the load. The simplest and best way to do this is by using a separate motor generator.

In addition to adjusting the speed by weakening the field of the motor, generator voltage can be changed to give speed ranges up to 40/1. The speed-control rheostats can be combined and operated from one mechanism, so that the complete speed range can be obtained by the movement of one handle. The cost of this equipment is much higher than for a d-c motor alone, since a motor generator has to be purchased for the motor or motors on one drive. Credit should be allowed, in figuring the cost of such a system, for the fact that the d-c power supply can be reduced by the power supplied by the motor generator.

This system gives better speed regulation, since the d-c voltage is not disturbed by motors driving other equipment. However, speed regulation due to the load and temperature changes still is present, especially when more than one motor of a machine drive is connected to the same generator. When an attempt is made to obtain more than 10/1 speed change by voltage, the voltage drop in the armature circuit makes the speed regulation very poor at low speed. This type of equipment lends itself to the driving of a number of motors on a machine or processing line, since the relative speed of each motor can be adjusted by its field rheostat, while the speed of the machine or processing line can be adjusted by varying the generator voltage.

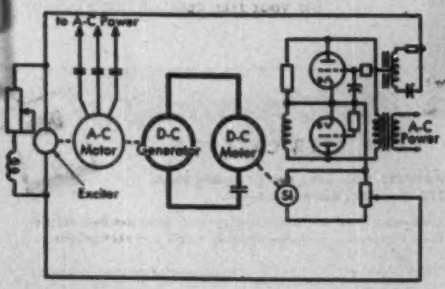
Separate Exciters

Figure 7 shows how separate exciters can be added for each field. While the speed range and speed regulation is not improved by using separate exciters, the size of the rheostats will be reduced.

Separate exciters increase the cost and size of the equipment with very little increase in maintenance.

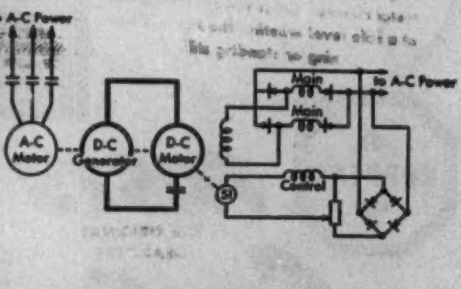
Rototrol Rotating Regulator

By modifying the exciter, we have a rotating regulator — a Rototrol (*Figure 8*). The Rototrol is larger than an exciter, since it must operate



D-C Motor with Motor Generator with Electronic Regulator

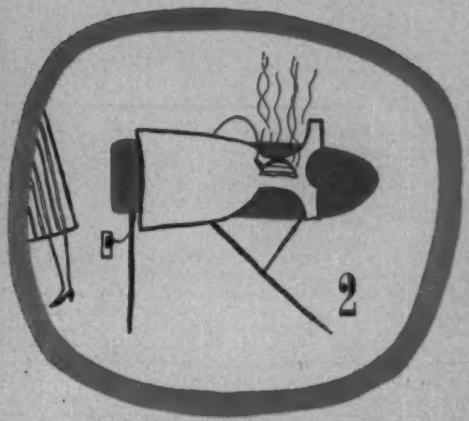
Figure 9



D-C Motor with Motor Generator with Magnetic Amplifier

Figure 10

Purecal irons out coating problems



Is your paper coating as uniform as you'd like? Is it always consistent? Does it allow your equipment to operate at high speeds?

Chances are Purecal* can help. You see, Purecal stabilizes and regulates coating viscosity. If you use other carbonates or clay, even small additions of Purecal will improve your coating. Added to clay alone, it lets you run at higher speeds with less down-time. Added to other calcium carbonates and clay, it irons out the variations they cause. You save money. In addition, you get a coating that's uniform in thickness.

This isn't "blue-sky" we're talking. We've got proof of what Purecal can do. Let us show it to you.

*Trademark

SODA ASH • CAUSTIC SODA • BICARBONATE OF SODA
CALCIUM CARBONATE • CALCIUM CHLORIDE • CHLORINE
HYDROGEN • DRY ICE • SYNTHETIC DETERGENTS • GLYCOLS
CARBOSE (Sodium CMC) • ETHYLENE DICHLORIDE • PROPYLENE
DICHLORIDE • AROMATIC SULFONIC ACID DERIVATIVES
OTHER ORGANIC AND INORGANIC CHEMICALS

WYANDOTTE CHEMICALS CORPORATION
Wyandotte, Michigan • Offices in Principal Cities

Wyandotte
REG. U. S. PAT. OFF.

TABLE I

Relative Characteristics of Speed Controlling and Speed Regulating Systems

D-C Motor with:	Relative Cost	Speed Range	Speed Regulation	Size	Weight	Maintenance	Applications
1. Rheostat	100%	4/1	10/25%*	100%	100%	High	Constant-horsepower: machine tools, lathes, planers, and drill presses
2. Motor Generator	180%	40/1	10/25%*	200%	200%	Lower	Constant-horsepower and constant-torque: tandem drives, steel mills, paper mills, textile mills, and rubber mill conveyors
3. Motor Generator with Exciters	200%	40/1	10/25%*	225%	225%	Lower	Same as 2
4. Motor Generator with Rototrols	250%	120/1	± 1%	225%	225%	Lower	Same as 2
5. Motor Generator with Electronic Regulator	300%	120/1	±0.1%	210%	210%	Similar to 3 Except for Tubes	Paper machines and rod mills
6. Motor Generator with Magnetic Amplifier	250%	120/1	± 1%	225%	225%	Lowest	Same as 2

* Approximate values which may vary depending on the motor and generators used.

on the straight-line or unsaturated portion of the saturation curve. Also, more space must be made available, since several windings must be added—such as the self-energizing, anti-hunt, control, and pattern fields. When only one motor is connected to the generator, the generator exciter becomes a Rototrol, and the speed cue from the speed-indicating tachometer regulates the voltage applied to the motor to maintain constant motor speed. Speed ranges as great as 120/1 can be obtained when the Rototrol is used. By means of a speed-indicating tachometer connected to the control field, speed regulation as low as plus or minus one percent man be obtained. When more than one motor receives its power from the generator, a Rototrol regulates the field of each motor. To obtain the full 120/1 speed range on such a system, it is necessary to add an IR drop booster to compensate for the resistance drop in the armature circuit of each motor.

The additional size of the Rototrols, as compared to the exciters, increases the cost of the equipment. Improved speed regulation more than offsets the additional cost. Maintenance is no greater than for the motor generator with exciters.

Electronic Regulators

If vacuum tubes are used as rectifiers to obtain the d-c excitation instead of rotating exciters, we then have a control circuit which requires much less power than either the exciter or the Rototrol.

Speed regulation as low as plus or minus 0.1 percent can be obtained when the proper anti-hunt circuits have been added to the grid circuit of the vacuum tubes. The better speed regulation obtained by using vacuum tubes is due to the almost instantaneous speed of response of the tubes, as compared to the time delays in the Rototrol due to inductance in the windings and eddy currents in the magnetic circuit.

Figure 9 shows an electronic regulator supplying field excitation for the d-c motor. As in the case of the Rototrol, the electronic regulator can be used with a speed-indicating tachometer connected to the motor—either to regulate the field of the d-c motor, or to regulate the voltage of the d-c generator when only one motor is being used per generator.

Electronic regulators increase the cost as compared to Rototrols, but the size is about the same. The maintenance of the electronic regulator is similar but may be more, depending upon the tube life.

Magnetic Amplifiers

If the exciter or the electronic rectifier is replaced by a plate-type rectifier such as the Rectox, we have a source of d-c excitation. And, if the transformer used with the Rectox is made with special magnetic material, we can add a control winding. When a small d-c current is fed into this control winding, the amount of d-c current flowing through the main winding will be changed. Thus, a small rheostat or potentiometer in the control winding can be used to adjust or control the large field current of either the d-c motor or the d-c generator. We now have what is known as a magnetic amplifier (*Figure 10*).

A cue from a speed-indicating tachometer connected to the motor can be fed into the control winding and, by means of a potentiometer, the speed can be adjusted.

Figure 10 shows how a magnetic amplifier can be used as the speed regulator for a d-c motor. When only one d-c motor is connected to the generator, the magnetic amplifier can be connected to the generator field. The magnetic amplifier is a very good speed regulator, and when the transformer is made of high-quality Hypernik steel and very low resistance Rectox units are used, the speed regulation will be better than that of the Rototrol, but not quite as good as the electronic regulator.

The cost of the magnetic amplifier is about the same as the Rototrol, but maintenance is very much lower, since there are no moving parts or brushes.

Summary of Relative Characteristics

A summary of the relative characteristics of these different speed controlling and speed regulating schemes is presented in *Table I*. The table is based on the average values for a 5-, 25-, 50-, 100-, and a 200-hp motor, each having a speed of 400 to 1600 rpm.

The d-c motor with a rheostat is assumed to be 100 per cent, and all other combinations are compared to it.

Increased speed both from a labor cost and improved quality of product is becoming more and more important. The electrical industry, with improved regulators, has made the individual drives on various processing lines possible.

While Rototrols will continue to be used where the speed regulation is not too critical, the electronic regulator will have to be used where very close speed regulation is required.

However, with the improvement in magnetic materials and Rectox units, the magnetic amplifier will be more generally used because of performance and reduced maintenance.

Fewer Steel Strapping Restrictions

WASHINGTON, D. C. — Elimination of 11 restrictions on use of steel strapping from the present M-59, and amendment to preclude use of such strapping for any purpose for which it was not used in the 12 months ending last April 30, was made to NPA by an industry advisory group representing steel strapping manufacturers.

Among recommendations by the advisory committee, were an amendment to permit certification of orders by responsible individuals, and a clarification of the definition of steel strapping, to eliminate metal hoops, stitching wire, cotton bale ties, and other such devices from the classification.

Authorizes Bonuses

WASHINGTON, D. C. — The Salary Stabilization Board last week announced that it would authorize payment of bonuses according to General Wage Regulation 14, just issued, pending issuance of its own regulations.

INDEX, FEATURE ARTICLES, PAPER TRADE JOURNAL
VOLUME 132 JANUARY 5, 1951 to JUNE 29, 1951

SUBJECT	DATE	NO.	PAGE NO.
Abstract of President Beckett's Report	Feb.	23	99
American Life and industry—Their Effect On the Shipping Sack Situation	Feb.	23	80
Andre Completes Half-Million Dollar Plant	Feb.	9	14
Association Services in Mobilization	Feb.	23	94
Background Information	Feb.	2	28
Bankers, Blind Spots in Forestry	Mar.	30	22
Bathurst Conservation Measures	June	29	19
Canadian Possibilities 1951	Feb.	23	118
Casein Summary 1950	Feb.	23	82
Champion Wins KromeKote Suit	June	15	42
Continuous Stock Preparation in a 6 Machine Fine Paper Plant	Jan.	19	26
Corrosion and Field Lining of Sulphate Digesters (XI of Series)	Feb.	9	24
Corrosion and Field Lining of Sulphate Digesters (Cont'd from Feb. 9 issue)	Feb.	16	18
Criteria for Pulp Allocation	Feb.	23	86
Effect of Molding Temperature on the Strength And Dimensional Stability of Hardboards from Fiberized Water-Soaked Douglas-Fir Chips	Apr.	27	20
Effects of Paper Imports	Feb.	23	125
Effect of Time and Temperature of Burning on Quicklime Properties	June	1	22
Failure of a Pulp Mill Digester	June	15	57
Flow Measurement of Fluids Through Small Pipes	Mar.	16	32
Forecast for 1951	Feb.	23	112
Four Million GPD from Single Caisson Well	June	8	18
From A Consumer's Viewpoint	Apr.	27	16
Hardboard from Wood	May	4	22
How are Your Forests Doing?	Apr.	13	28
How Ohio Boxboard Maintains Industrial Truck Batteries (Maintenance—I of Series)	Apr.	27	18
How To Get Most Service From Rubber-Covered Rolls (Maintenance—IV of Series)	June	15	56
How to Postpone Pulp Allocations	Feb.	23	90
Impact of Defense Requirements in the Paper and Twine Industry	June	29	37
Import Problems 1950	Feb.	23	83
Industry Advisory Committees to Government Agencies	June	1	18
The Influence of Electrolytes on Pulp & Paper Properties (Part 1—Cation Effects)	June	22	19
Johns-Manville's Wallboard Mill at Natchez	Apr.	20	22
Maintenance of Felt Conditioners (Maintenance—II of Series)	May	11	28
Major Expansion Program for Union Bag	Mar.	16	11
Manufacture of Consolidated Products from Wood Residues	June	8	20
Market Woodpulp—1951	Feb.	23	92
Mill and Merchant Relationship	June	15	54
More and More Paper Production Records	Feb.	23	60
A New Construction-Formula for Cellulose as a Work-Hypothesis	Apr.	13	18
Newsprint Paper in 1950	Feb.	23	71
The Newsprint Situation	May	4	17
1951—? (Forecast)	Feb.	23	110
The 1951 Outlook for Canada	Jan.	19	14
Northern's Stream Improvement Plan	Jan.	5	12
Now—Corrugated Cartons for Citrus Fruit	May	11	22
An Ounce per Train Mile (Paper Users—II of Series)	Mar.	30	20
Our Wood Problem	Feb.	9	13
Outlook for Writing Paper Industry	Apr.	20	16
Paper Exports and World Demand	Feb.	23	95
Paper In The Hotel Industry (Paper Users—III of Series)	May	4	30
The Paper Industry and Freedom of Enterprise	Feb.	23	84
Planning a Public Information Program	Feb.	9	19
Potlatch Forests	Mar.	9	19
Practical Burning of Pyrites for Sulphite Pulping	May	25	21
Private Enterprise and the Defense of Freedom	Jan.	5	14
The Protection of Electric Equipment from Corrosion in Pulp and Paper (Corrosion—IX of Series)	Jan.	19	18
The Pulp Situation	Feb.	23	133
Ramie Fiber Developments	June	1	13
Recent Developments for the Paper Industry by Dow Chemical Co.	Jan.	12	28
Recent Developments In Pump Maintenance (Maintenance—II of Series)	May	18	24
Relation Between Wood and Pulp Properties	Jan.	19	30
Review and Forecast for the Paper Napkin Industry	Feb.	23	117
Review of Market Pulp—1950	Feb.	23	66
Review of 1950 in the Unbleached Kraft Paper Industry	Feb.	23	58
The Role of the Pulp-Wood Industry In Industry Mobilization	Feb.	23	121
Ruberoid's Newest Roofing Felt Mill	Apr.	13	34
St. Joe Increases Pulp Yield by Hot Stock Refining	Apr.	6	24
Sawteeth in Action	Jan.	26	16
Somebody is Always Listening	Feb.	23	136
Stainless Steel Castings, Valves and Fittings Best Corrosion in Paper Industry (Corrosion—X of Series)	Jan.	26	31
Status of Forestry in the Pulpwood Industry in the Lake States	Jan.	12	32
Stock Preparation in the Manufacture of Liner Board	Mar.	30	15
Stream Improvement Progress	Mar.	2	17
Suction Rolls—Their Uses and Maintenance	Mar.	16	30
The Sulphur Situation	Apr.	20	20
Summary of NPA Regulations	Mar.	9	36
Twenty-five Years' Pulping Developments of Agricultural Residues	Mar.	23	16
Viscosity (Part III, Turbulence, cont'd from Dec. 23, 1950, issue)	Jan.	5	18
Viscosity (Part IV—Effects of Temperature and Pressure, cont'd from Jan. 5, 1951, issue)	Jan.	12	18
Viscosity Control of Concentrated Clay Suspensions	Feb.	16	28
Waste Paper Situation	Feb.	23	98
A Water Policy for the American People	Mar.	30	25
Where Are We?	Feb.	2	32
Which Way American Economy?	Feb.	23	127
Whither Imports?	Feb.	16	11
Wood Pulp Shortage	Mar.	16	15
Wood Pulp Supply	Feb.	23	57
Wood Waste in the Douglas Fir Region	May	11	23
A Worm's-Eye View of the Sulfite Waste Liquor Problem	Apr.	6	16
The Yankee Machine For Dry or Semi-Creped Tissue	May	18	21

INDEX, AUTHORS OF FEATURE ARTICLES

AUTHORS	ISSUE NO.	PAGE NO.
ADKINS, L. R.	May	18	21
AMIDON, G. B.	Jan.	12	32
ARNST, ALBERT	Feb.	9	19
BAIRD, P. K.	Apr.	27	20
BAISCH, S. J.	Feb.	9	24
BAKER, COLLEY S.	Feb.	23	98
BARBER (BILL) WM. R.	Apr.	6	16
BECKER, F. G. L.	Mar.	23	16
BROWN, D. K.	Feb.	23	125
BULLOCK, WARREN	Feb.	23	83
CANFIELD, CHARLES	June	15	54
CLAUSON, KARL A.	Feb.	23	66
CMENTAK, DR. A.	Apr.	13	18
COHEN, W. E.	June	22	19
COLLINS, T. T., JR.	Feb.	9	24
CONNALLY, G. E.	May	25	21
CONNOR, C. M.	Mar.	16	30
DOBROW, MORRIS C.	Feb.	23	60
EDGE, J. V.	Apr.	13	34
EHRLICH, PHILLIP S.	Feb.	23	127
EVANS, ROBERT H.	Feb.	23	90
EVEREST, D. C.	Feb.	23	110
EVEREST, D. C.	Feb.	23	121
EVERY, DERNELL	Feb.	23	58
FARBER, EDUARD	May	4	32
FARRANT, GWENNETH	June	22	19
FISCHER, H. C.	June	1	22
FOWLER, R. M.	Apr.	20	20
FOWLER, R. M.	May	4	17
GUERNSEY, F. W.	May	11	23
HANSON, HUGO H.	Apr.	20	16
HAYES, W. C.	Mar.	30	15
HERON, ALEXANDER R.	Feb.	23	136
HERSHBERGER, EARL	May	4	30
HILL, DR. ALLAN C.	Feb.	23	116
HOLZER, W. F.	Jan.	19	30
JOHNSON, GEORGE V.	Feb.	23	95
JOHNSON, VERNON E.	Apr.	13	28
KNAPP, G. W.	Jan.	19	18
LAGERLOEF, ERIC G.	Mar.	9	36

DOWNINGTOWN FELT MACHINE at The RUBEROID Co. mill, Mobile, Alabama

New Downingtown Felt Machine from wet end consisting of a cross-flow stock box (not shown) and Conflow vat illustrated in the foreground, a press section with two plain presses and stands for the future addition of a suction primary press. In the background is a two deck dryer section with forty-two 4'0" diameter dryer rolls.

30% per day OVER designed production rate

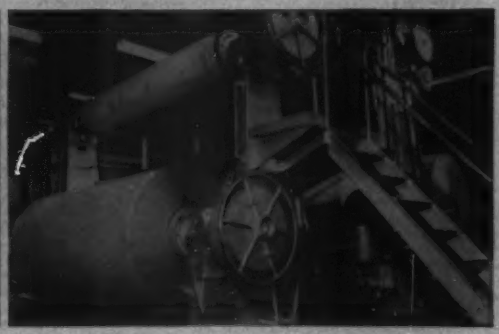
Here is a *completely* new, integrated roofing felt mill recently built by The RUBEROID Co. From 1948 until its completion, Downingtown and Ruberoid engineers collaborated in the development of this mill which, because of certain limiting factors, presented problems of design and arrangement not usually encountered. That these problems were successfully overcome, plus the fact that production reached over 30% *above* design capacity is an achievement in which Downingtown is proud to have played a part.

Write for further information about this unusual felt mill.

DOWNINGTOWN MANUFACTURING CO., DOWNINGTOWN, PA.

Pacific Coast Representative: John V. Roslund, Pacific Bldg., Portland 4, Oregon

Line shaft and sectional drives with Downingtown spiral bevel gear units and vari-pitch sheaves.



Reel capable of making 72" diameter rolls on the Winder.

DOWNINGTOWN

DESIGNERS AND BUILDERS OF PAPER, BOARD AND FELT MACHINES SINCE 1840

AUTHORS	ISSUE NO.	PAGE NO.
LANDBERG, ERIK G.	May 10	34
LARSON, L. K.	Feb. 23	86
LENTHALL, H. J.	May 25	21
LUTZ, ALFRED C.	June 15	56
MAC COULL, NEIL	Jan. 5	18
MAC COULL, NEIL	Jan. 12	16
MACDONALD, M. D.	June 8	20
MAKARA, FRANK	June 15	42
MANNING, CHARLES	Apr. 27	16
MCGINN, E. P.	Apr. 20	22
MCGINN, E. P.	May 25	21
MCGINN, E. P.	June 29	19
MILLMAN, N.	Feb. 16	28
MOTT, N. S.	Jan. 26	31
MURRAY, J. A.	June 1	22
OSEAS, ISRAEL B.	June 1	18
PERRY, HENRY J.	Feb. 16	11
POCTA, FRANK	Feb. 23	80
STILBERT, E. K.	Jan. 12	28
REINEKE, L. H.	Jan. 26	16
RITCHIE, JAMES L.	Feb. 23	57
ROYCE, CLINTON K.	June 29	37
SABEAN, D. W.	June 1	32
SCHWARTZ, SIDNEY L.	Apr. 27	30
SHERWOOD, NIAL	June 8	18
STEVENSON, DR. LOUIS T.	Feb. 23	84
STOLL, HENRY W.	Mar. 16	22
SUCKSDORFF, BJORN	Jan. 19	36
TIPKA, VERNON L.	Feb. 23	71
TOURANGEAU, ROMEO	Mar. 16	30
TURCOTTE, L.	Feb. 23	133
VAUGHAN, J. E.	Apr. 27	18
VELDEN, G., T. VANDER	Feb. 9	24
WARE, G. G.	Mar. 30	22
WARREN, B. D.	May 11	28
WATSON, A. J.	June 22	19
WHITE, W. T.	June 15	57
WILBERT, T. R.	Feb. 23	92
WILSON, ARLO	Feb. 23	117
WILSON, HARRY D.	Feb. 23	82
WILSON, JEANNETTE	Feb. 2	28
WRIGHT, C. E.	Apr. 6	24
WRIGHT, C. E.	May 11	22
WRIGHT, C. E.	June 1	13
ZIMMERMAN, W. B.	Feb. 23	94

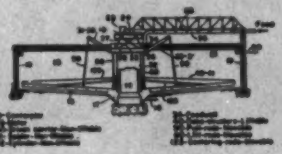
Patent Abstracts

● *In addition to abstracts on the technology of pulp, paper and related industries, miscellaneous abstracts which may provide useful information are included.*

U.S. 2,557,140—Rotary Joint. Adolph Razdowitz, New York, N.Y. Filed December 23, 1948—Issued June 19, 1951.

In a rotary joint for pressurized elements, two hollow members, to be jointed for rotary movement, means for applying predetermined pressure within said members, a chamber disposed between said members and adapted to receive a magnetizable fluid, means for providing a magnetic field in said chamber in order to solidify said magnetizable fluid in the field, thereby providing sealing means against pressure leakage for said members.

U.S. 2,557,316 — Settler. Charles Harold Scott, Westport, Conn., assignor to The Dorr Company, Stamford, Conn. Filed May 18, 1949—Issued June 19, 1951.



A sediment-raking mechanism which when in operative position with respect to a settler is supported from a driven carrier for unidirectional horizontal turnable movement about a vertical axis; which comprises in combination a spider of constant elevation supported from and turnable with said carrier; a depending cage member concentric with said axis and connected with said spider whereby it is turnable therewith at constant elevation; an elevatable rake structure surrounding the lower portion of said cage and embodying outwardly-extending bladed rake arms; a set of at least three downwardly and rearwardly slanting pull-rods of which the upper ends are respectively pivotally connected to the spider while the lower ends are pivotally connected to corresponding portions of the rake structure; a set of at least three downwardly and forwardly slanting non-extensible but functionally shortenable low step-rods of which the upper ends derive pivotal support from the spider while the lower ends thereof have means for providing carrying support for the rake structure when the latter is in low sediment-raking position therefor, and a set of at least three centering rods of which the inner ends have pivotal connections at constant elevation to a low end portion of the cage member while the outer ends thereof have pivotal connections to corresponding portions of the elevatable rake structure.

U.S. 2,557,517—Draw Closure Bag. Thomas M. Scruggs, Richmond Heights, Mo., assignor to Bemis Bro. Bag Company, St. Louis, Mo. Filed November 3, 1949—Issued June 19, 1951.

In a bag having a stitched side seam and an open bag mouth, a draw-type closure comprising a length of raw-edged woven narrow fabric, the length of fabric being woven into the bag adjacent its mouth and arranged flatwise with respect to the bag body with its ends caught in the bag side seam, said length of fabric having a plurality of relatively closely spaced longitudinal yarns and a plurality of relatively widely spaced transverse yarns, the width of said length of fabric being such that it is caught by several stitches of the bag side seam.

Can. 474,682—Methods and Apparatus for Chemical Steeping of Fibrous or Pulverulent Materials. Elmer R. Burling and John P. Rich, Nashua, New Hampshire, U.S.A. Filed April 6, 1949—Issued June 26, 1951.

A method of treating pulp comprising continuously advancing a pulp slurry vertically upward along a cylindrical path, subjecting all pulp arriving at a predetermined level to a slow, positive, continuous, smooth, radially outward displacement by causing said pulp to flow along a substantially cycloidal path and reflecting from the boundary of said cylindrical path the pulp thus radially outward displaced in a radially inward direction to drive before it other pulp immediately above and below said level, said inward and outward displacements being continuous and uninterrupted whereby to minimize agitation between mutually adjacent fibers.

Can. 474,715—Methods of Removing Hemi-Cellulose from Wood Pulp. Jack McK. Limerick, Bathurst, New Brunswick, Canada.. Filed August 30, 1947—Issued June 26, 1951.

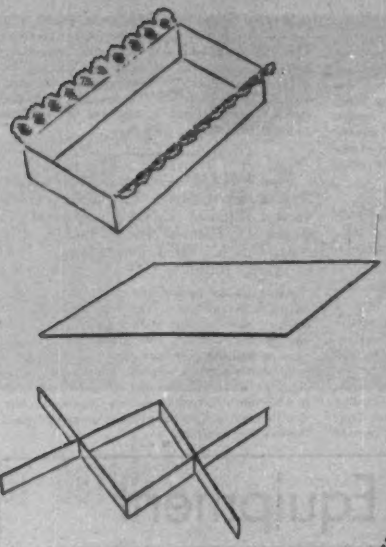
A multi-stage continuous process for purifying pulp each stage of which comprises the consecutive steps of providing a slurry of pulp and alkaline treating liquor in which the pulp, by weight, is from approximately 3 to approximately 5%, diluting the slurry to a pulp consistency of approximately 1% by the addition of alkaline treating liquor, then thickening the slurry to a consistency of approximately 6 to approximately 12% while simultaneously displacing the first alkaline treating liquor with a second, stronger alkaline treating liquor, then diluting the slurry to approximately 3 to approximately 5% pulp consistency by the addition of more of the second, stronger alkaline treating liquor, then advancing the thus diluted slurry continuously along a closed, predetermined path for a period of approximately fifteen to approximately sixty minutes, then repeating all of the above steps in three to four stages using consecutively stronger liquors for the final dilution step in each stage, the final dilution liquor in each stage coming from the thickening step of the next succeeding stage, continuously removing a predetermined proportion of liquor from one of the early stages and continuously adding an equivalent amount of fresh liquor at the final dilution step of the last stage and regulating the rates of addition of fresh liquor and the removal of spent liquor to maintain the concentration of hemi-cellulose in the liquors below 5%, the several diluting steps being carried out with agitation to break up localized concentrations of dissolved hemi-cellulose adjacent the individual pulp fibers.

Can. 474,718—Automatic Paper Feed Cut-offs. Alfonso Martell, Bloomfield, New Jersey, U.S.A. Filed September 27, 1948—Issued June 26, 1951.

An attachment for use on a printing press having a printing cylinder, a conveyor means having courses receiving printed sheets from the press, a mechanism for feeding sheets to the press, including an oscillatory part and means for stopping the mechanism when said part is stopped; said attachment comprising in combination a magnet; a guided plunger bolt adapted when the magnet is energized to be withdrawn toward the magnet; a plunger rod slidably reciprocatorily guided transverse to said bolt at the end of the bolt when the bolt is retracted, and connected to said part and adapted to be stopped by the bolt when not retracted thereby to stop said part; a switch mounted under the path of the printed sheets and connected in series circuit with the magnet; a feeler connected to the switch and adapted to be pressed beyond the plane of the printed sheets when no sheet is present, thereby to open the switch.

Can. 474,762—Jordan Engine Plug Construction. Harold D. Stuck, Andover, Massachusetts, U.S.A. Filed November 16, 1948—Issued June 26, 1951.

The combination in a Jordan engine plug having a truncated conical supporting body, of an outside jacket made of a plurality of sections of steel or stainless steel each section having a large curved end which fits outside an arc of the



avoid the smell... increase the sell

Manufacturers of packages for candies, foods and confectionery products are offering their customers distinct sales advantages by supplying paper and cardboard boxes that don't smell like paper. They are adding Monsanto flavor and aroma chemicals to their stock to mask undesirable pulp and paper odors and tastes that can be transmitted to the package contents.

The application of these flavor and aroma chemicals is very simple. Since only small quantities are needed, the added cost is trifling by comparison with the added sales advantages that result.

Investigate these increased sales and profit possibilities. For information, contact the nearest Monsanto Sales Office or MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1700 So. Second St., St. Louis 4, Mo.

DISTRICT SALES OFFICES: Birmingham, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Detroit, Houston, Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Seattle. In Canada, Monsanto (Canada) Ltd., Montreal.

MONSANTO FLAVOR AND AROMA CHEMICALS

ETHAVAN, Monsanto's ethyl vanillin
COUMARIN MONSANTO
METHYL SALICYLATE, U.S.P., synthetic oil of wintergreen
VANILLIN MONSANTO

Reg. U. S. Pat. Off.

MONSANTO
CHEMICALS—PLASTICS

SERVING INDUSTRY... WHICH SERVES MANKIND

supporting body at the large end and a small curved end which fits outside an arc of the supporting body at the small end and having substantially straight sides, the sides of adjoining sections being seam welded together and the sections being plug welded to the supporting body, there being outside slots in the jacket to receive and hold outwardly extending bars, the outside of each slot being smaller than some parts of the inside whereby each bar can be held in place against radial displacement.

Can. 474,830 — Collapsible Receptacles. Frank D. Palmer, Chicago, Illinois, U.S.A., assignor to Frank D. Palmer, Inc., Chicago, Illinois, U.S.A. Filed July 5, 1948 — Issued June 26, 1951.

A paperboard blank for forming a receptacle having bottom, side and end walls, and flaps extending from said end walls over adjacent end portions of the side walls with tab extensions of said flaps passing through slits in said side walls, the blank having panels respectively corresponding to said bottom, side and end walls and said flaps, said wall panels being foldably connected to said bottom panel and said flaps being panels, said side wall panel having slits therein for receiving said tabs and said slits and tabs respectively providing and having elongated side wall and tab edge portions which are interengageable in parallel relation to each other along substantial portions of their lengths to lock the walls in receptacle position.

Can. 474,831 — Container Forming Apparatus. Charles E. Palmer, Glenview, Illinois, U.S.A., assignor to Frank D. Palmer, Inc., Chicago, Illinois, U.S.A. Filed December 6, 1948 — Issued June 26, 1951.

Apparatus for folding into carton form, a blank having a bottom panel, two relatively angularly disposed pairs of side wall forming panels, and end extensions on the free edges of one of said pairs of wall panels, comprising a die structure, a reciprocably mounted mandrel, means for effecting reciprocation of said mandrel in operative relation to said die structure to thereby move said mandrel through said die structure to press said blank through the structure.

New Equipment

Corrosion Proof Joints

Corrosion-Proof Joints are made from super stainless for highly corrosive conditions which once caused failure of bellows type expansion joints. The manufacturer states that Stainless No. 20 for expansion joints has been proven in service involving corrodents such as: (a) tertiary amylphenol and amylene, slightly contaminated with sulfuric acid; (b) high concentrations of salt water; (c) sulfuric acid concentrations ranging from 35 percent to 65 percent at temperatures from boiling to 110 degrees F. Write to Carpenter Steel Co. Alloy Tube Div., Union, N. J.

Safety Switch Lock

The Safety Switch Lock is an important device protecting workmen as well as machine against possible injury. Beaver Pipe Tools, Inc., Warren, Ohio, announces that Model E lightweight economy model is now equipped with a Safety Switch Lock to give it the same advantages as the larger and more expensive models.

Electric Tachometer

The new electric tachometer is comparable in price to the previously offered mechanical type, and is more accurate. For that reason, the mechanical tachometers have been discontinued. Operates on the A.C. generator principle, also allows more flexibility in installation, since the indicator may be mounted as far as 300 feet from the variable-speed drive. The new unit was designed especially for quick and easy installation on REEVES variable speed drives, in capacities from ¼ to 87 h.p., already in service. For most installations, no alteration of any existing parts will be necessary it is stated. Write to Reeves Pulley Co. Inc., Columbus, Ind.

Chemical Feeder

The Constaflo is designed to draw solutions or slurries from a container and force them into a line or vessel under pressures up to and including 100 psig. By employing special operating cams and rocker bars, the acceleration curve of one feeding head is exactly balanced by the deceleration curve of the second feeding head, so that the resulting delivery from the two discharge ports manifolded into a common line is smooth and pulsation-free. The feed rate is manually adjustable while the unit is in motion, either by means of a single-stroke adjusting knob which controls the amount delivered from each head, or by changing the position of a V-belt on 3-step cone pulleys. Its recommended delivery range is from 1.0 to 15 gallons per hour, at temperatures not exceeding 100° F. Write to % Proportioniers, Inc., %, Providence, R. I.

Rotating Pressure Joint

The Phillips Rotating Pressure Joint can be used for steam, water, oil, chemicals and gas. Developed to meet the increasing demand for a flexible joint that would replace unsatisfactory methods of transferring steam and liquids into and from revolving drums or rollers, the new joint combines these features: it is packless, all metal seating, flexible, and leakproof. Swivel motion is designed to eliminate rapid wear by compensating for any misalignment through an angular movement in its construction. Especially recommended by the manufacturer for severe cases where speed and high temperatures are a factor. Phillips Rotary Joint and Valve Co. Inc., 5711-13 Boulevard East, West New York, N. J.

Magic-Jog

Hand-jogging of paper to be assembled from presses and duplicating machines is replaced by Magic-Jog. It is designed to line up paper for binding, packing, loose-leaf books, records, stapling and folding. The jogging table, 10 by 12 inches, is made of sturdy Masonite tempered hardboard; body is rust-resistant, spot-welded sheet steel. Weight of the paper starts action. Jogging is equipped with a control knob that adjusts points for load weight, a combing button which frees stuck sheets, and an automatic shutoff when the load is removed. Magic Circle Manufacturing Corp., 6136 E. Admiral Pl., P.O. Box 3335, Tulsa 15, Okla.

Combination Type Chain

Designed for conveying sawdust, refuse, wood chips, etc., a new Rex Combination-Type Chain has been announced. It is built to handle assignments that might prove too tough for ordinary mill type chain, but yet operates over the same sprockets and in the same troughs.

Its superior strength is achieved by alternating steel with cast links and using larger diameter rivets and pins. Side bars of the steel links are accurately blanked from high-carbon steel. The cast links have wide wearing shoes which are tapered to avoid catching with possible damage to the conveyor. Barrels of the cast links have grease chambers which are factory-filled. The faces of the barrels are designed to act as scrapers so

(Continued on page 40)

for better all-round WET STRENGTH PAPER

USE P-682 BECKAMINE

RCI's P-682 Beckamine is a strength producing resin with a proven ability to improve paper properties. Because it increases wet strength, dry tensile and Mullen strength, P-682 is ideally suited for use in the production of butcher wraps, paper toweling, bag stock and liner board. In addition, P-682 aids in the retention of clay, rosin size, starch and other beater additives. Low in price, yet high in quality, this resin can be used with either bleached or unbleached paper stocks. For further information, together with a working sample, write direct to the RCI sales department at Detroit.

REICHHOLD CHEMICALS, INC.

RCI

General Offices and Main Plant, Detroit 20, Michigan

Other Plants: Brooklyn, New York
Elizabeth, New Jersey • South San Francisco and Azusa, California • Tuscaloosa, Alabama • Seattle, Washington • Chicago, Illinois • Charlotte, N. C.
Liverpool, England • Paris, France • Sydney, Australia • Sassenheim and Apeldoorn, Holland • Naples, Italy • Buenos Aires, Argentina • Hamburg, Germany
Toronto and Port Moody, Canada • East London, South Africa • Osaka, Japan • Wernberg, Austria • Gothenburg, Sweden • Zurich, Switzerland

SYNTHETIC RESINS • CHEMICAL COLORS • PHENOLIC PLASTICS • PHENOL • GLYCERINE
PHTHALIC ANHYDRIDE • MALEIC ANHYDRIDE • SODIUM SULFATE • SODIUM SULFITE

PRICES

The prices below reflect market quotations in New York at the mill level on standard grades. Does not include spot offerings.

PAPER AND BOARD

Standard News, Delivered Ports

Rolls, contract, per ton	$105.00/116.00
Sheets	118.00/ —

F.o.b. Mills. C.l. Frt. allowed, dock, N. Y.

Kraft— per cwt., 40# base wgt.

Standard Wrapping Rolls	$7.75/ —
No. 1 Wrapping Rolls	8.25/ 8.50
Standard Bag	7.50/ —

Tissues— per ream 24x36 (480) 10 lbs. 3500 lbs or more

Wh. No. 1 Frd.	$1.95 /$2.25
Wh. No. 1 MG	2.10 / 2.40
Wh. No. 1½	1.85 / 2.15
Wh. No. 2	1.85 / 2.15
Kraft Anti-Tar 20x30	1.85 / 2.15
White Anti-Tar 20x30	1.95 / —

Toilet— per case or 100 rolls—1 M sheets

Unbleached 4½x4½	$8.00/$8.25
Unbleached 4½x5	6.60/ —
Bleached 4½x4½	10.00/12.50
Bleached 4½x5	9.85/ —
Per Case of 50 rolls —2000 sheets	
Unbleached 4½x4½	$8.00/$9.75
Bleached 4½x4½	6.95/ —
Per Case of 100 rolls—1000 sheets	
Facial, 4½x5, 2-ply	$8.95/10.65

Paper Towels— per case of 3750

Wh. Jr. M'tif'd 9½x9½	$5.75
Br. Sr. M'tif'd 9½x12	4.10
Br. Jr. M'tif'd 9½x9½	3.60
Br. Jr. Spl. fold 9½x10¼	3.65
Bkbd. 7½x11, 24/25 rolls	$7.00/7.55

Manila, per cwt.

No. 1 Jute Tag, 100-lb., sheets*	$19.55/21.55
Reg. Jute M.F. 40-lb., sheets*	18.00/20.00
Wrapping Manila	8.75/10.50
Printing Manila	10.50/12.00

* Less usual allowance for rolls.

Gummed Tape— per bdl., 500 bdls. or more

90-lb. 375 ft. GSI	$7.20 / —
60-lb. 600 ft. GSI	7.20 / —
35-lb. 800 ft. GSI	8.28 / —
35-lb. 500 ft. GSO	6.21 / —

MARKET WOOD PULP

Third Quarter Contract Prices, Per Short Air-Dry Ton

Varying freight allowances — On Dock Atlantic Ports

	*U. S.	Canadian	*Swedish	*Finnish	*Norwegian
Groundwood	$92.50/ —	‡$95.00/100.00			
Sulfate, Bleached	145.00/ —	190.00/200.00	$230.00/ —	$230.00/ —	$230.00/ —
Semi-bleached Sulfate	140.00/ —				
Sulfate, Unbl.	132.50/ —	145.00/175.00	200.00/ —	200.00/ —	
Sulfite, Bkbd.	140.00/ —	160.00/175.00	225.00/ —	225.00/ —	225.00/ —
Sulfite, Unbkbd.	132.50/ —	150.00/160.00	200.00/ —	200.00/ —	
Sulfite, Unbl'd (Glassine)		164.00/ —			
Soda, Bkbd.	140.00/ —	155.00/160.00			
Sulfite Screenings	72.50/ —				
Sulfate Screenings	67.50/ —				
Groundwood Screenings	60.00/ —				
Unbkbd Sulfate Siderums	132.50/ —				
Stand. News. Siderums	92.50/ —	106.00 —			

* OPS Ceiling, CPR 49 ‡ F.o.b. Shipping Point.

Boards, per ton—

Filled News	$107.50/ —
Plain Chip	105.00/107.50
Bkbd. Mfg. Ld. Chip	147.50/ —
White Pat. coated .020	170.00/ —
Kraft Liners 42 lb.	115.00/117.50
Kraft Corr. .009	122.50/126.00
Binders Boards	137.50/140.00

The following prices are representative distributors' resale prices.

Rag Content Bonds and Ledgers— White, 20 lb.

Bonds	4 Ctns. per cwt.
100% Rag Ex. No. 1	$70.45/$75.90
100% Rag	62.65/ —
75% Rag	48.15/ —
50% Rag	38.90/ —
25% Rag	31.65/ 33.00

Ledgers	4 Ctns. per cwt.
100% Rag Ex. No. 1	$72.65/$72.80
100% Rag	63.90/ —
75% Rag	49.40/ —
50% Rag	40.20/ —
25% Rag	33.00/ 34.30

Sulphite Bonds and Ledgers White, 20 lb.

Bonds	4 Ctns. per cwt.
Watermarked	$19.00/$20.50
Plain	18.05/ 19.50

Ledgers	4 Ctns. per cwt.
Watermarked	$20.30/$21.80
Plain	19.35/ 20.80

White Rock

Conversion Coated	Case per cwt.
No. 1	$23.40/$24.60
No. 2	21.90/ 23.40
No. 3	20.40/ 22.40
Machine Coated	
No. 1	$18.15/$18.40
No. 2	16.15/ 16.65
Uncoated	
No. 1 Antique (Watermarked)	$18.65/$19.65
Offset	17.40/ 19.90
A Grade E. F.	17.40/ 18.65
A Grade S. C.	18.15/ 19.40
B Grade E. F.	17.65/ 18.40
B Grade S. C.	16.90/ 19.15

‡ Indicates a price change.

WASTE PAPER MARKET

The following quotations were gathered from major dealers in each market. They are an indication of the price range in which volume tonnage was moving on the date specified. Prices to mills, per ton, f.o.b. cars shipping point (includes brokers' fee.)

	New York Aug. 6	Philadelphia Aug. 6	Boston Aug. 3	Chicago Aug. 3
No. 1 Mixed Paper	$17.00/ 19.00	$16.00/ —	$19.00/ —	$18.00/ —
Boxboard Cuts	29.00/ 25.00	16.00/ —	25.00/ —	23.00/ —
Mill Wrappers	20.00/ 30.00	22.00/ 24.00	20.00/ —	22.00/ —
No. 1 News	19.00/ 21.00	18.00/ —	— / 22.00	18.00/ —
Over-issue News	28.00/ 35.00	25.00/ 27.00	22.00/ 24.00	23.00/ —
Corrugated Containers	37.00/ 39.00	36.00/ —	46.50/ 48.00	50.00/ —
New Corrugated Cuts	Nominal	38.00/ —	45.00/ 55.00	45.00/ —
Double Kraft Ld. Corr. Cuts	115.00/120.00	105.00/120.00	100.00/110.00	120.00/ —
100% Kraft Corr. Cuts	140.00/165.00	125.00/135.00	120.00/140.00	140.00/ —
Used Kraft Bags	85.00/105.00	80.00/ 85.00	75.00/106.50	60.00/ —
No. 1 Brown Kraft Paper	70.00/ 75.00	90.00/ 95.00	80.00/100.00	60.00/ —
Super Resorted Br. Kraft	100.00/105.00	100.00/105.00	90.00/115.00	80.00/ —
New Br. Kraft Env. Cuts	160.00/180.00	150.00/ —	150.00/170.00	140.00/ —
New Br. Kraft Cuts	150.00/175.00	140.00/140.00	140.00/170.00	140.00/ —
No. 1 Gdwd Shvs.	65.00/ 70.00	50.00/ 55.00	65.00/ 75.00	45.00/ —
White Newsblanks	90.00/ —	70.00/ —	80.00/ 90.00	70.00/ —
No. 1 Flyleaf Shvs.	80.00/ 90.00	70.00/ —	85.00/100.00	100.00/ —
No. 1 Soft Wht. Shvs.	160.00/190.00	165.00/ —	165.00/185.00	175.00/ —
Super Soft Wht. Shvs.	190.00/200.00	175.00/ —	180.00/200.00	185.00/ —
Hd. Wht. Shvs.	185.00/210.00	190.00/215.00	180.00/205.00	190.00/ —
Hd. Wht. Env. Cuts	200.00/245.00	200.00/225.00	190.00/225.00	190.00/ —
New Manila Env. Cuts	140.00/150.00	160.00/165.00	130.00/155.00	100.00/ —
Col. Tab Cards	110.00/120.00	100.00/ —	85.00/140.00	100.00/ —
Manila Tab Cards	170.00/185.00	160.00/ —	160.00/190.00	165.00/ —
No. 1 Mixed Ledger	95.00/105.00	90.00/100.00	77.00/100.00	100.00/ —
White Ledger	130.00/135.00	125.00/130.00	115.00/130.00	125.00/ —
No. 1 Book & Mag.†	41.00/ 43.00	35.00/ 45.00	30.00/ 50.00	22.00/ —
No. 1 Rep'd. Hvy. Books‡	50.00/ 55.00	43.00/ 50.00	50.00/ 65.00	45.00/ —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% groundwood.

RAG MARKET

New Domestic Cotton Cuttings
OPS Ceiling Price, CPR 28
Delivered Mill Basis

Add 7½% Dealer Commission

No. 1 White Shirts	$21.00
No. 1 Unbkbd. Muslins	21.00
Bkbd. & Unbkbd. Underwears	21.00
Bkbd. Canton Flannels	21.00
No. 1 Light Silesias	16.00
No. 1 Light Prints	11.50
No. 1 Blue Overalls	14.50
Suntan Khakis	11.50

Add 10% Dealer Commission

Fancy Shirts	$10.00
Indigo Blues	10.00
Mixed Khakis	8.00
Corduroys	8.00
Cottonades	8.00
No. 1 Washables	6.50

Old Domestic Cotton Rags
(Prices to Dealers, f.o.b. Ship. Pt.)

	Per 100 lbs.
Mixed Whites	$5.00/$5.50
Cotton Pants & Overalls	4.25/ 5.00
Thirds and Blues, Repacked	3.75/ 4.00
No. 1 Roofing Rags	2.00/ 2.10
No. 2 Roofing Rags	1.80/ 1.90
No. 3 & 4 Roofing Rags	1.70/ 1.80

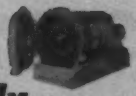
Bagging
(Prices to Dealers, f.o.b. N. Y.)

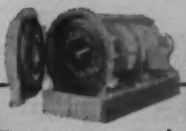
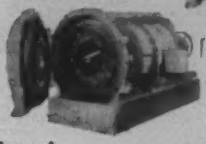
	Per 100 lbs.
Foreign Gunny	$5.50/$6.00
Domestic Gunny, No. 1	5.50/ 6.00
Heavy Wool Tares	8.00/ 8.25
Foreign Manila Rope	8.50/ 8.75
Domestic Manila Rope	9.00/ 9.25
Jute Strings	6.00/ 6.50
No. 1 Sisal Strings	8.00/ 8.25
Paper Mill Tares	5.25/ 5.75
Foreign Scrap Burlap	5.00/ 5.25
Domestic Scrap Burlap	6.50/ 7.00
Austr. Wool Pouches	7.90/ 8.10
New Burlap Cuttings	7.90/ 8.00

to solve SEMI-CHEMICAL refining problems economically—

a large South-Eastern Mill uses

Sprout-Waldron Refiners

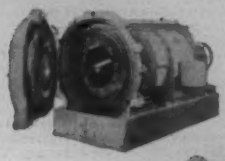


One of the largest integrated pulp-to-container plants in the world is now building a 300 ton per day semi-chemical pulp mill, expandable to 400 tons to make .009 corrugating board for its own use. 9 Sprout-Waldron Refiners will do the pulping.

Here's why S-W Refiners are preferred by mills throughout the United States and Canada:

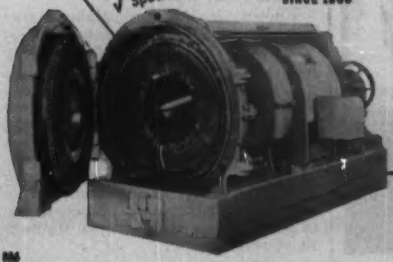
- Flexibility of operation
- High capacity
- High pulp quality
- Ease of feeding
- Low capital investment
- Low maintenance costs
- Low plate costs per ton of pulp



The Sprout-Waldron 36-2 Refiner is THE SEMI-CHEMICAL PULP REFINER
It's the top producer of semi-chemical pulp today

List of Applications
- √ Semi-chemical Pulping (Bleached-Unbleached)
- √ Pre-Refining—High Yield hot brown stock
- √ Kraft—Groundwood—Sulphite Knots & Screenings
- √ Secondary Refining of Asplund Stock
- √ Bleached Soda Pulp
- √ Insulation Board Stock
- √ Hardboard Stock
- √ Flooring Felt
- √ Special Applications

SW SPROUT WALDRON SINCE 1809



You can pinpoint exact pulp test requirements with the Sprout-Waldron Refiner.

See what others are doing . . . your copy of our special file on successful semi-chemical pulp mills is reserved for you. Write Sprout, Waldron & Co., Inc., 59 Waldron St., Muncy, Pa.

Sprout-Waldron
Manufacturing Engineers
MUNCY - PENNSYLVANIA

886

MATERIALS

Aluminum sulfate:		
comm. bags, wks.	cwt.	1.60
iron-free c.l.		3.25
Alcohol, ethyl:		
tax free, dnm. c.l.	gal.	1.01 / 1.05½
drid. East Miss.		
Alcohol, methyl:		
Synthetic, Zone 1, dnm. c.l. tk. alld.	gal.	.44
Casein, acid prec.:		
dom. sh. pt. c.l.	lb.	.39 / .41½
imp. ex. dock	lb.	.29½/ .40
Caustic soda:		
c.l. wks. solid, 76%, cwt.		3.35
flak. & grd. 100-lb. drums		3.75
liquid 50% tanks		2.55
liquid 70% tanks		2.65
China clay:		
dom. air-float. filler, c.l. wks.	ton	18.00
water-washed, lump, filler		11.00
coating		17.60 /30.56
imported, ex whse.	short ton	15.20 /28.35
Chlorine:		
single-unit tanks, works	cwt.	2.70
multi-unit	cwt.	3.25 / 4.40
Formaldehyde:		
USP, inh. dnm. c.l. wks.	lb.	.0625/ .0675
l.c.l., E. wks.		.0675/ .0725
Fuel oil:		
Bunker C, No. 6 Cal. bvy tanks, refinery	bbl.	1.95 / 2.15
light	bbl.	2.00 / 2.25
Hydrogen peroxide:		
USP, 35% chys. E. of Miss.	lb.	.23½/ .36½
Lime:		
hydrated, bags, wks.	ton	13.50
Rosin:		
B gum, drms, c.l. Savan.	cwt.	7.00 / 9.00*
G, H, I, K	cwt.	8.29 / 9.49*
FF, wood, do.	cwt.	6.50 / 7.30
* OPS Ceiling, CPR 32.		
Rosin size:		
70%, gum & pale grds, tank cars, south, sh. pt.	cwt.	6.47 / 6.65
Salt cake:		
dom. bulk, c.l. wks.	ton	17.00
wks. frt. all.	ton	20.00 /22.00
Soda ash:		
light, 58%, bags, wks.		1.50
bulk	cwt.	1.30
Sodium silicate 40°:		
turbid. c.l. wks.	cwt.	1.50 /
l.c.l. wks.		1.60 / 1.85
Sodium peroxide:		
dnm. c.l. E. of Miss.	lb.	.21
l.c.l. do.	lb.	.21½/ .23
Soybean, protein:		
chem. ind. wks. c.l. Cinn. and Chic.	lb.	.24 / —
Sulfuric acid:		
60° Be. chys. cl. wks.	cwt.	1.75 / —
l.c.l. wks.	cwt.	2.05 / 2.35

U. S. IMPORTS
WOODPULP

Preliminary, June, 1951

Item	Country of Origin	Short Tons
Mechanical		
Unbldd.	Canada	21,624
	Sweden	1,285
	Norway	2,330
	Finland	2,185
		27,424
Screenings	Canada	742
Bldd.	Canada	2,065
Chemical		
Sulfite, Unbldd.	Canada	40,612
	Sweden	11,621
	Denmark	15
	Austria	52
	Finland	5,487
		57,787
Screenings	Canada	620
	Sweden	644
		1,264
Sulfite, Bldd. Rayon & Special Chem. Grades	Canada	18,560
Other	Canada	20,807
	Sweden	5,638
	Norway	2,489
	Finland	2,140
		31,074
Sulfate, Unbldd.	Canada	13,366
	Sweden	16,586
	Finland	10,731
		36,683
Sulfate, Bldd.	Canada	40,148
	Sweden	10,779
	Norway	447
	France	17
	Finland	2,570
		53,961
Soda, Unbldd. & Bldd.	Canada	2,717
Totals, June	Canada	163,261
	Sweden	40,553
	Norway	5,266
	Finland	23,113
	Denmark	15
	Austria	52
	France	17
		232,277

Sulfur:		
crude, c.l. mines, contract,	long ton	21.00 /22.00
f.o.b vessels Gulf		22.50 /23.50
Sulfur dioxide:		
liquid, comm. cyl. wks.	lb.	.09
multi-unit cars	lb.	.0835
Starches:		
pearl corn, bags, c.l. wks.	cwt.	6.02 / —
white dextrines, c.l. wks.	cwt.	7.41 / —
potato, Idaho, c.l. wks.	cwt.	5.90 / —
potato, Maine, c.l. wks.	cwt.	5.75 / 6.00
tapioca, conv. dextrines	cwt.	7.75 / 8.50
low, Siam, on dock N. Y.		5.50 / 5.75
low, Siam, on dock N.Y.		5.50 / 5.75 nominal
Talc:		
domestic, 50-lb. sacks, c.l. wks.	ton	25.00 /30.00
Titanium dioxide:		
anastase, c.l. deld., bags	lb.	.21 / .21½
l.c.l. deld.	lb.	.22 / .22½
rutile, c.l. deld.	lb.	.23 / .23½
l.c.l. deld.	lb.	.24 / .24½

NEW EQUIPMENT

(Continued from page 36)

that material will not pack in the trough.

For details, write Chain Belt Co.; Dept. PR, 1600 West Bruce St., Milwaukee 4, Wis.

Belt Idler

An improved self-aligning, belt conveyor return idler is announced. Designed to reduce the possibility of belt damage from roving, it provides automatic alignment for the return run of the belt without the use of side guide rolls. This Rex Style No. 33 RA Idler is mounted on a roller bearing turntable, with the entire assembly tilted 45° in the direction of return belt travel. Lateral movement of the

belt to one side moves that side of the roll forward and, because of the tilt, downward, thus decreasing belt pressure on that side. At the same time, the opposite side of the roll moves back and upward, increasing belt pressure on its side. Through this counterbalancing action, the belt automatically returns to its central position. The idler sensitively maintains an equilibrium at the center of the roll. The action is equally effective with horizontal, inclined or declined conveyors and is unaffected by build-up of material on the roll, it is said. Manufactured by Chain Belt Co., 1600 West Bruce St., Milwaukee 4, Wis.

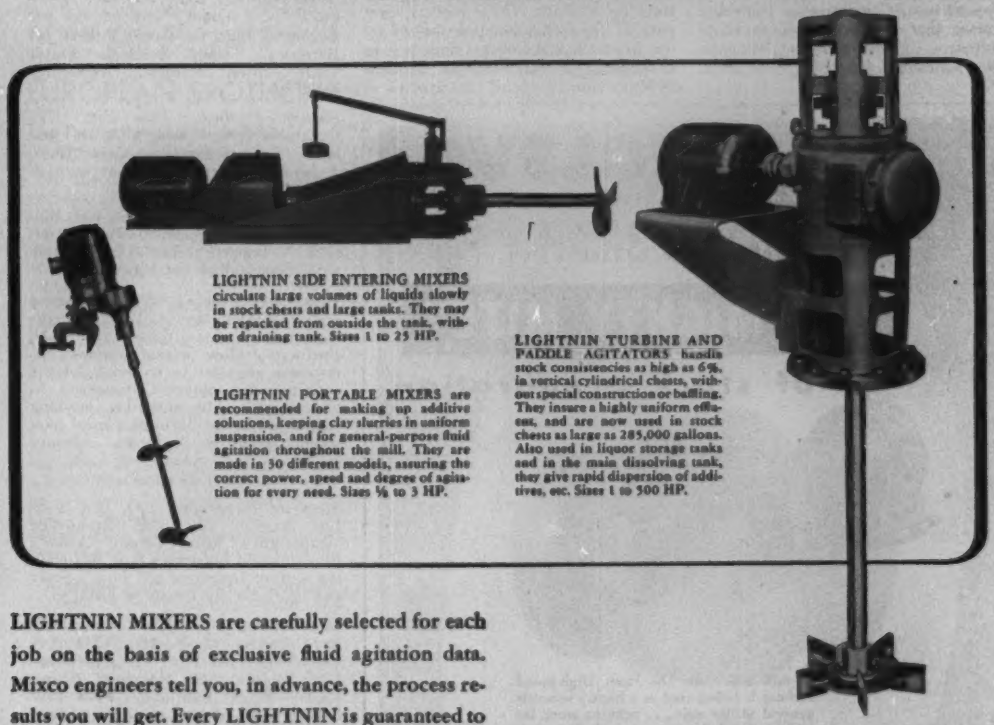
Electric Pallet Truck

Known as the SpaceMaker Low-Lift, the new rider-type, low-lift electric was designed to speed up handling by enabling the operator to ride while picking up and delivering unit loads. Handles both single and doubleface pallets, travels up to 5 m.p.h. carrying 4000-lb. loads and up to 6 m.p.h. when empty. Similar in appearance, performance and specifications to the maker's electric tiering truck, it is described as extremely maneuverable in aisles 6 feet wide. 191-83 Madison St., Greene, N. Y.

Lightnin® Mixers

MIXCO® Engineered

TAKE THE GUESSWORK OUT OF FLUID AGITATION! RESULTS *GUARANTEED!*



LIGHTNIN SIDE ENTERING MIXERS circulate large volumes of liquids slowly in stock chests and large tanks. They may be repacked from outside the tank, without draining tank. Sizes 1 to 25 HP.

LIGHTNIN PORTABLE MIXERS are recommended for making up additive solutions, keeping clay slurries in uniform suspension, and for general-purpose fluid agitation throughout the mill. They are made in 30 different models, assuring the correct power, speed and degree of agitation for every need. Sizes ⅛ to 3 HP.

LIGHTNIN TURBINE AND PADDLE AGITATORS handle stock consistencies as high as 6%, in vertical cylindrical chests, without special construction or baffling. They insure a highly uniform effluent, and are now used in stock chests as large as 285,000 gallons. Also used in liquor storage tanks and in the main dissolving tank, they give rapid dispersion of additives, etc. Sizes 1 to 500 HP.

LIGHTNIN MIXERS are carefully selected for each job on the basis of exclusive fluid agitation data. Mixco engineers tell you, in advance, the process results you will get. Every LIGHTNIN is guaranteed to do the job for which it is recommended.

Let MIXCO agitation specialists show you how "engineered agitation" can help you get the process results you are after—without costly trial-and-error methods. For full information, write today briefly describing your needs.

makers of

Lightnin Mixers

A COMPLETE LINE . . . UNEXCELLED TECHNOLOGY

MIXING EQUIPMENT Co., Inc.

(MIXCO)

173 Mt. Read Blvd., Rochester 11, N.Y.

In Canada: William & J. G. Greey, Ltd., Toronto 1

Please send me the literature checked:

- ☐ B-76 Side Entering Mixers
- ☐ B-78 Top Entering Mixers (Propeller Type)
- ☐ B-89 Top Entering Mixers (Turbine and Paddle Type)
- ☐ DH-50 Laboratory Mixers
- ☐ B-36 Condensed Catalog showing complete line
- ☐ B-75 Portable Mixers (Electric and Air Driven)

Name_____

Title_____

Company_____

Address_____

City_____ Zone____ State_____

NEW LITERATURE

American Hoist and Derrick Co. St. Paul 1, Minn. Catalog, "American Electric Car Pullers." Describes the complete line and provides specifications and applications.

Babcock & Wilcox Tube Co. Beaver Falls, Pa. Data card, "Creep Stress Data on B & W Croloys and other Tubular Materials for High-Temperature Service." Free on request.

Baldwin-Hill Co. Trenton, N. J. "Powerhouse Cement—the Finishing Cement that Insulates!" Gives characteristics of this product; composition, adhesion, shrinkage, coverage, etc.

Blaw-Knox Co. Power Piping Div. Pittsburgh 12, Pa. Catalog No. 51, "Adjustable Pipe Hangers, Vibration Eliminators and Supports." Valuable data for those who buy materials of this character or write specifications therefor. Copy available gratis.

Committee for Economic Development (CED). 444 Madison Ave., New York 22, N. Y. Book, "American Monetary Policy", by Dr. E. A. Goldenweiser. The study is the 14th book-length research report written for CED by outstanding scholars. These reports form part of the basic material studied by the Research and Policy Committee in developing its statements on national policy.

Jones
Still
"the MIGHTY MITE"
of stock preparation
In mill after mill, the Jones High-Speed Refiner is being used as a highly versatile general utility unit . . . refining stock for high-quality ledger paper; defibering over-issue news; clearing flakes from coated book broke.
And in case after case, the report comes back: "improved stock — better control — drastic reduction in operating horsepower requirements—lowered maintenance costs."
This explains why over 900 units have been sold (not counting those by imitators!) since its introduction. Your Jones representative will tell you more about it — or write for Bulletin 1011-B.
Jones
HIGH-SPEED REFINER
E. D. Jones and Sons Company, Pittsfield, Mass.
BUILDERS OF QUALITY STOCK PREPARATION MACHINERY

Dillon, W. C. & Co., Inc. 1421 S. Circle Ave. Forest Park, Chicago, Ill. Bulletin, "Dillon Multi-low-range Universal Tester". Technical and sales copy with illustrations.

Electric Auto-Lite Co. Toledo 1, Ohio. Booklet, "Auto-Lite". Descriptive information and specifications on recording thermometers, dial indicating thermometers, recording pressure gauges, and accessories.

Gould-National Batteries, Inc. Trenton 7, N. J. Book, "Instructions and Technical Data for Gould Rubber Jar Batteries". Copy available gratis. Third edition of battery technology handbook.

Paisley Products, Inc. Div. 1770 Canalport Ave., Chicago 16, Ill. Bulletin, "Boxeal Shipping Case Glue". A laboratory report complete with illustrations.

Reeves Pulley Co. Columbus, Ind. Bulletin, "Reeves Electrical Tachometer, G-511". Imparts technical information with dimensional cutaways.

Supt. of Documents, U. S. Printing Office, Washington 25, D. C. 4 page pamphlet, "Defense Loans for Small Business". How private business enterprises engaged in national defense activities can obtain Government financial aid. Also describes working capital aid in the form of partial payments, progress payments, advance payments and guaranteed loans, as well as other financing aspects.

Siegfried Ruppright. P.O. Box 6795, Los Angeles 22, Calif. Broad-side "Ruppright's Rotary Roof Cooler". Explains and illustrates how this cooling system functions and how quickly and economically it can be installed.

Stephens-Adamson Mfg. Co., Bearing Div., Aurora, Ill. Booklet, "The S-A Conveyor, Vol. 196". In this issue: How Zipper Belt Conveyor Stores Carbon Black; Continuous Flow Processing For Pharmaceuticals; Limestone-Lake Freighter to Kilns; Flexibility of Redlers Simplifies Modernization, etc.

Stonhard Co. 1306 Spring Garden St., Philadelphia 23, Pa. Bulletin, "Stonhard Resurfacer". Complete data available for trial demonstration.

Thermix Corp. Greenwich, Conn. Booklet, "This Is Thermix", project and sales engineers. A brief report on its activities, principals and their products.

Warren Steam Pump Co., Inc. Warren, Mass. 8 page bulletin, "WQ-50". Details the improved rotary type Warren-Quimby Rotex Pump, including sectional and exterior views, dimensions, selection chart and specifications.

Western Michigan College. Kalamazoo, Mich. Booklet, "Pulp and Paper Technology." Discusses employment opportunities for men and women in

the paper manufacturing industry, and the training that can be acquired by enrolling in the P. & P. Technology Curriculum at Western Michigan College.

Wiley, John & Sons, Inc. 440-4th Ave., New York 16, N. Y. Book, "Insect Control By Chemicals". 817 pp. Illus. $12.50 per copy. Evaluates hazards of the use of insecticides, indicates the best insecticides to use on particular insects, etc. Also, book, "Practice of Wildlife Conservation". Presenting a biological basis of management, 412 pp. Illus. $5.50 per copy.

EUROPEAN SPOTLIGHT

Top Production and High Prices in All European Countries

In the month of July there was a general, though modest, increase in prices on all European paper markets. At the same time, production in the first 5 or 6 months of the year generally show a remarkable increase in tonnage.

Topic of the month, in the European trade press as well as in the daily press, remains scarcity of newsprint. It is generally thought that only a decrease in American consumption of newsprint will free extra tonnage for Europe. Though possibilities of increasing home production of newsprint are discussed everywhere, there seems to be little chance of a considerable increase in European output of newsprint. In most countries, including western Germany, we note a rather sharp fall in newsprint production, owing to lack of raw materials.

In England paper prices rose a little at the end of the preceding month, and an additional increase was made effective July 30. Nevertheless, also in this country there is a growing tendency to think that the ceiling has been reached, or at least that future increases will only be of a rather weak nature. Last increases range from £6/18/9 for newsprint to £27 a ton for pure kraft. It is remarkable that esparto papers were very modestly increased in prices, only £5 a ton. Price difference between equal wood-free and esparto papers is now £13 a ton.

Price level in England may be shown by the following prices, as valid after the last increases:

Home-produced newsprint: £66/7/6 a ton basic price; £66/18/9 a ton for the widely used 14 lb. demy substance. Mechanical printings, £56/2/6 - £86 a ton, according to grade; pure kraft liner board, £140 a ton, on basis caliper .009 in. to 0.30 in.; esparto printing and writing, £155 a ton; woodfree papers, £142–£156 a ton, according to grade; M.G. poster, £163/17/6 a ton; M.G. envelope, £127 a ton; M.G. unbleached sulphite, £162/5 a ton; M.G. pure kraft, £164 a ton; glazed imitation kraft, £117/2/6 a ton. (£ Sterling = $2.798.)

Though figures for the first half year are not yet available, it is quite certain that British imports of papermaking materials booked a notable increase, especially imports of esparto grass. Canada, the Soviet Union, Finland and the U.S.A. contributed to these larger figures, whereas Sweden and Norway decreased their exports to the British Isles. Imports of paper also increased considerably, whereas the British paper export must have booked a severe decline.

In France prices rose between 18 percent and 25 percent. For newsprint, however, the increase ranges from 30 to 33 percent. In the months of May and April, the record quantity of 134,000 tons of paper and board in each month was produced. It is thought that France will be able to produce 1,500,000 tons this year, against 1,200,000 tons in 1938. This high-peak figure seems to be at the expense of quality. The scarcity of bleached pulp forces the mills to turn out papers of rather low quality.

Authorization was received from the ECA for shipments of $200,000 worth of pulp, paper and paper products, $285,000 worth of cotton linters, bleached, and cotton pulp, and another $420,000 worth of pulp, paper and paper products. Pulpwood and newsprint excepted.

LOVEJOY L-R FLEXIBLE COUPLINGS

A NAME TO REMEMBER (when you buy)
A COUPLING TO FORGET (when installed)

Maintenance-free Lovejoy Flexible Couplings are just the thing to counteract maximum misalignment, vibration, surge and backlash . . . install them and forget them. They feature free-floating cushions suspended between strong metal jaws. Cushions are available for every duty . . . 1/6 to 2500 H.P. NO SHUTDOWNS FOR CHANGING and no lubrication ever needed.

Write for catalog and Quick-finding Selector Charts

LOVEJOY FLEXIBLE COUPLING CO.
5069 W. Lake Street — Chicago 44, Illinois
Also Mfrs. of Lovejoy Universal Joints and Lovejoy Variable Speed Transmissions.

In Germany, in the Western zones, production steadily goes up, but production of newsprint is falling down rather sharply. Paper prices are not increased, owing to an agreement which fixed all prices on the existing level for a period ending October 1.

For the contract period June 4 to September 30, the Federal Republic received an ECA authorization for the delivery of $2000 worth of pulp, paper and paper products, excluding newsprint.

Italy is one of the very few countries which does not face scarcity and increased prices. Paper industry in Italy, as well as the converting and graphic industry, lacks orders and most mills are not able to effect satisfactory prices. Only boards and woodpulp form an exception and sales can be effected on the existing price level. Imports of woodpulp are down and imports of paper are very small. Italian paper export, however, is rising considerably.

A new mill is to be built at Como, and is to produce 15,000 tons of pulp yearly. Poplar, chestnut, straw and reed will be the raw materials.

In Switzerland we have to note a considerable increase in prices, about 15 to 20 percent. The Swiss paper industry buys ⅔ of its raw materials from abroad; ⅓ is home production. Increasing prices of foreign pulp urged the Swiss paper industry to effectuate higher prices for its products.

In Sweden the situation is of the utmost importance for nearly all European markets. The latest increase of Swedish export duties—to be refunded to the exporters after a number of years—will doubtless effect price level in every European country. The increase was considerable, as is shown in the figures below:

Export taxes for mechanical woodpulp: increased from 75 kr to 125 kr. a ton.

Export taxes for sulphite woodpulp: increased from 200 kr to 450 kr.

Export taxes for other sulphite and sulphate pulps: increased from 200 kr to 470 kr.

Export taxes for paper and board: increased from 210 kr to 350 kr.

Export taxes for newsprint: increased from 200 kr to 260 kr.

These new taxes became effective July 1. (Krona = $0.1932.)

Another remarkable feature of the Swedish paper market is its great price differences. Prices for newsprint to be supplied to Swedish newspapers are rather low: 430 to 450 kr a ton, to be increased now to 500 kr a ton. The Swedish newspapers voluntarily cut their consumption by 15 percent since the end of the war; any additional quantity brought over and above their ration must be bought at the high price of 900 kr a ton. Great Britain has to pay 800 kr for Swedish newsprint; South America, 1000 kr; and the United States $106 a ton.

Swedish exports of wood pulp show a decline in the first quarter of this years, with the exception of dissolving pulp. Mechanical pulp rose by over 4000 tons. In this first quarter of 1951, the United Kingdom maintained its positions as Sweden's biggest pulp client, though the United States topped U.K. receipts of bleached sulphate by some 5000 tons. Germany is now also a very important market for the Swedish producers.

In Norway export duties were fixed on a higher level. In Norway, these taxes are not refunded to the exporters, but are used for keeping down the general price index. These higher taxes are accompanied by higher prices of wood pulp and cellulose for home production. This means a general increase of paper prices, except newsprint, which is given a special subsidy. Particulars are not yet known.

Production in Norway rose from 465,000 tons in 1949 to 475,000 tons in 1950. Figures for the first 6 months of 1951 are not yet available.

In Austria, paper industry shows a remarkable come-back after the difficult war years. Though exports are not yet on pre-war level, continuous efforts are made to win back the important export trade. Production capacity is given as (yearly): 265,500 tons of sul-

ELIXMAN
CORES
CAPS

Straight wound paper cores made in sizes from 2" to 10" inside diameter with any thickness wall required.

Long draw protected slot caps of heavy gauge steel in all standard sizes.

Heavy duty caps with reenforced square hole. This patented feature of reenforcement gives added strength and durability.

Samples of caps or cores will be gladly submitted

ELIXMAN PAPER CORE COMPANY, INC.
CORINTH, N. Y.

phite cellulose, 20,000 tons soda cellulose, 110,000 tons mechanical woodpulp, 70,000 tons wrapping papers, 15,000 tons special papers, 19,500 tons machine boards, and 45,500 tons handmade boards.

Poland is reported working hard to rebuild its paper industry. Production in 1938 was 204,400 tons, which figure shrank to 148,000 tons in 1948, owing to the severe war damage. In 1949, thanks to rebuilding and to mills in the newly acquired parts of Eastern Germany, production reached 265,200 tons. Figures for 1950 are not yet available, but the Government has planned a production of 530,000 tons in 1955. Pro capita consumption, which was only 6 kg in 1938, is stated to have grown to 10.6 kg in 1949.

Yugoslavia received an ECA authorization of $80,000 worth of pulp, paper and paper products, except newsprint or pulpwood. The terminal delivery date is April 30, 1952.

Russian official publications say that paper and board production rose 47 percent from 1940 to 1950. Production in 1940 was 810,000 tons, so last year's production must have been about 1,190,700 tons. Per capita consumption is estimated at 6 kg yearly.

In Spain a new pulp mill will be erected at La Corogna by the Spanish papermill "Papelera." The capacity will be 30,000 tons, of which 16,500 tons will be unbleached pulp.

In Portugal newsprint shows, in some cases, an increase in price of 70 percent. The Portuguese Government will now subsidize prices in order to reduce this increase. All imports of paper will now require an official authorization from the Ministry of Economy, and factory prices will be reviewed every three months.

Irish Imports and Exports

Imports into the Republic of Ireland during May, 1951, classified as paper, cardboard, etc., were valued at £584,613, as against £379,900 in May, 1950.

This brings the value of these imports for the first five months of 1951 to £2,400,445 as against £1,743,461 in the corresponding period of 1950.

Of the May, 1951, imports, papermaking materials amounted to 1,116 tons valued at £88,737, against 1,106 tons, valued at £43,680, in May, 1950.

Other imports include:

	Value	
Article	*May, 1951.*	*May, 1950.*
Packing and wrapping paper	£10,898	£2,998
Tissue paper	£ 8,610	£2,418
Oiled, waxed and other waterproof paper	£21,239	£12,004
Cigarette paper	£2,597	£10,376
Greaseproof paper	£19,881	£7,406
Imitation parchment	£21,063	£8,630
Gummed paper	£6,877	£3,203
Wall and Ceiling paper printed	£2,335	£4,935
Cellulose paper (wrapping) etc.,	£18,536	£19,513
Other paper	£20,350	£6,459

ASSOCIATIONS

(Continued from page 18)

"The Application of Cables in Pulp and Paper Mills," by A. O. Mortenson, St. Regis Paper Co., Pensacola, Fla.

Discussion Sessions

A. Electrical Engineering (Tower Room)

"Preliminary Report on Power Requirements for Press Sections of Paper Machines," by R. R. Baker, Westinghouse Electric Corp., East Pittsburgh, Pa.

Discussion of Papers presented at the Electrical Engineering Session.

B. Steam and Power (Crystal Ballroom)

"Cinder Collection," by G. W. Bollinger, West Virginia Pulp & Paper Co., Charleston, S. C.

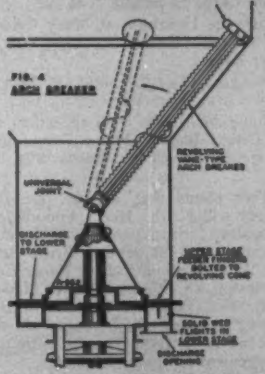
"Education of Power Plant Engineers," by M. F. Schnaufer, Detroit Sulphite Pulp & Paper Co., Detroit, Mich.

C. Hydraulics (Yacht Room)

Discussion of Papers presented at the Hydraulic Sessions.

Get-together Party and Dinner (General Ogelthorpe Grounds) (Sponsored by Allied Industries)

Get Free or MEASURED Flow of Wood Chips with an S-A circular bin discharger



S-A Circular Bin Discharger with Arch Breaker. Vane rotates on own axis as spider on end rails around bin.

Insures uniform, positive discharge of raw or cooked wood chips, clay for paper coating and other bulk materials that otherwise tend to clog or arch over discharge openings. No handling or manual control is needed because discharge can be in measured volume as required, for example in combined discharger-feeder operations. Unit includes a revolving cone with projecting fingers that agitate the material and sweep it over a discharge outlet. All models may be had with revolving, vane-type Mechanical Arch Breaker that prevents bridging inside the bin and loosens packed material. Units are dust-tight, self contained and may be used with virtually any bin or silo. Capacities for all usual requirements. Write us for a copy of Bin Discharger bulletin 230.

1901-1951

50 years experience with bulk handling

STEPHEN S-A ADAMSON MFG. CO.

42 Ridgeway Avenue, Aurora, Illinois — Los Angeles, Calif. • Belleville, Ontario

DESIGNERS AND MANUFACTURERS OF ALL TYPES OF BULK MATERIALS HANDLING EQUIPMENT

OCTOBER 17

Drying and Ventilating Session (Crystal Ballroom)

"High-Pressure Driers," by Charles P. Spalding, Beloit Iron Works, Beloit, Wis.

"Ventilation for Comfort of Personnel," by L. G. Javett, J. O. Ross Engineering Co., New York, N. Y.

Materials Handling Session (Crystal Ballroom)

"Woodmill Log Handling in the Pulp and Paper Industry on the West Coast," by W. H. Rambo and H. A. DeRice, Industrial Plant Engineers, Portland, Ore.

"Wood Handling Methods in Pulp Mills of Eastern North Carolina and Virginia," by C. L. Wills and C. L. Hildebrand, Halifax Paper Co., Roanoke Rapids, N. C.

"Pneumatic Conveyors," by H. A. Stoess, Fuller Co., New York, N. Y.

Engineering Division Luncheon (Main Dining Room)

Guest speaker to be announced.

Mill Maintenance and Materials Session (Crystal Ballroom)

"Use and Maintenance of Steel Sash in Pulp and Paper Mills," by K. S. Frazier, Detroit Steel Products Co., Detroit, Mich.

"Electrical Maintenance, Including Electronic Equipment," by H. R. Meyer, Westinghouse Electric Corp., E. Pittsburgh, Pa.

Discussion Sessions.

A. Mill Maintenance and Materials (Crystal Ball Room)

"Maintenance of Insulation in Pulp and Paper Mills," by Paul Corning, Rayonier Inc., Fernandina, Fla.

B. Materials Handling (Tower Room)

"Methods and means of Delivering Pulpwood to the Mill Yard"

C. Drying and Ventilating (Yacht Room)

"Translation from German of Application of the Laws of Drying and Ventilating to the Design and Operation of Pulp and Paper Machine Driers," by Karl Schmitt.

Dinner of Chairmen and Secretaries of Engineering Division Committees (Yacht Room).

OCTOBER 18

Visit to Mill of the Union Bag & Paper Corp. Savannah, Ga.

Barbecue Luncheon at Mary Calder Golf Course (Guests of Union Bag & Paper Corp.)

Visit to Mill of the Southern Paperboard Corp., Port Wentworth, Ga.

(Individuals who wish to return to the Union Bag & Paper Corp. mill for special department visits may do so.)

Other plants that will be open to visitors will be the Herty Foundation Laboratory, Savannah, Ga.; Brunswick Pulp and Paper Co., Brunswick, Ga.; West Virginia Pulp & Paper Co., Charleston, S. C.; and the Macon Kraft Co., Macon Ga. Individuals wishing to visit these plants should make advance arrangements with the management of these companies.

PAPER MEN ELECTED

Nelson T. Hampson, treasurer of the Lowe Papare Co., Ridgefield, N. J., has been elected vice-president of the New York City Control of the Controllers Institute. Succeeding him as treasurer is Stuart W. McLaughlin, comptroller of the West Virginia Pulp & Paper Co., New York City.

The new secretary-treasurer of the Twin Cities Control of the Institute is E. A. Johnston, controller of the Minnesota & Ontario Paper Co., Minneapolis.

At the annual meeting of the organization's Sprinfield (Mass.) Control, Joseph A. Chadbourne, president of the Old Colony Envelope Co., Westfield, Mass., was renamed secretary and treasurer. Magnus Peterson, secretary-treasurer of the U. S. Envelope Co., Springfield, was elected a director.

In Cincinnati, Ben Segal, controller of The Sabin Robbins Paper Co., was chosen treasurer of the local controllers' organization, and Homer L. Dillard, controller of The Champion Paper & Fibre Co., Hamilton, Ohio, was named a director.

Other paper industry executives who have been elected or re-elected directors of Institute local Controls in their respective cities include: J. R. Weston, controller, Howard Smith Paper Mills, Ltd., Toronto; E. W. Weston, secretary, The Weston Papar & Manufacturing Co., Dayton, Ohio, and Arlo Wilson, secretary-treasurer, Paper Napkin Assn., New York who was elected a director of the Bridgeport Control.

Established in 1931, the Institute is a non-profit organization of controllers and finance officers from all lines of business—banking, manufacturing, distribution, utilities, transportation, etc. The total membership exceeds 3,700.

R. A. COLGAN RESIGNS

Resignation of R. A. Colgan Jr., as executive vice-president of the National Lumber Manufacturers Assn., with headquarters here, to take over management of 600,000 acres of Shasta Forest Co. timber, was announced this week.

Mr. Colgan is in California to assume his new duties. He is a forestry graduate of Michigan State College, and is outstanding in conservation activities. He at one time managed timber and lumber operations in California for the Diamond Match Co.

NEW PACKAGING COURSE

Laboratory testing of student designed packages will be featured in a new course to be offered this fall by New York University's Division of General Education.

The course, "Packing and Packaging: Design Techniques and Cost Reduction Studies," is designed to emphasize student participation. Rigorous laboratory tests will be made on packages designed by members of the group, and students will be expected to participate in and contribute to solutions of a number of typical current packing problems.

ALVIN H. JOHNSON & CO.
INCORPORATED
415 LEXINGTON AVENUE
NEW YORK (17), N. Y.
Consulting Engineers to
The Paper Industry
Since 1929

ASTEN
"When better dryer felts are made . . ."
ASTEN-HILL MFG. CO., Philadelphia, Pa.
ASTEN-HILL LTD., Valleyfield, Quebec

FIBER RESEARCH AND SERVICE
Semi-Chem. and Chemical Pulp Processes
Pilot Plant Facilities
THE KINSLEY CHEMICAL COMPANY
Cleveland 11, Ohio

MISCO
STAINLESS STEEL CASTINGS
FOR ALL EQUIPMENT EXPOSED TO CORROSION BY SULPHITE ACIDS OR OTHER CORROSIVE AGENTS
MICHIGAN STEEL CASTING CO.
DETROIT 7, MICHIGAN

SUTHERLAND
BEATING SYSTEM
FOR HIGH SPEED PAPER MACHINES
SUTHERLAND
REFINER CORP., Trenton 6, N. J.

Allyn C. Beardsell, vice-president, and Alfred Hoffman, laboratory manager, both of Container Laboratories, Inc., will direct the course. Guest lecturers, including military personnel, will be brought in to discuss the more specialized areas to be covered.

Developed for those with previous experience in the field, the course will also include: analysis of test procedures, performance standards and laboratory testing; applications and limitations of production line packing techniques, and present day military packing techniques.

A basic course in package desgin will also be conducted by the Division during the fall semester. Under the direction of Egmont Arens, design consultant and former president of the Society of Industrial Designers, the group will discuss research, color dynamics, reproduction art and finish, food and industrial packaging, and package design as a tool for selling.

Both courses will meet for fifteen weeks beginning late in September. Further information may be obtained from the Division of General Education, 3 Washington Sq. North, New York 3, N. Y.

OBITUARIES

Clyde W. Miller, 72, former assistant secretary of Taggart Paper Co., died July 27 in Watertown, N. Y. He was associated with the paper firm for more than 15 years, serving as purchasing agent, office manager and finally assistant secretary.

Frank T. Roche and Lawrence V. Keefe, sales manager, and manager respectively, of the Packaging Division of the Lily-Tulip Cup Corp., New York, were killed instantly on the morning of July 27 when the car in which they were riding collided with a truck at Clifton, N. J.

Mason F. Ford, 52-year-old vice-president and director of St. Regis Paper Co., was stricken with a fatal heart attack July 30 in Sao Paulo, Brazil. Mr. Ford, a resident of both Sao Paulo and Buenos Aires, Argentina, for the past 23 years had served as manager of South American operations for St. Regis, including liaison work with the firm's licensees in those countries.

George Irvin Durnell, 71 who was associated with the National Vulcanized Fibre Co. for a number of years, died at his home in Newark, Del., on August 2. He retired from the firm in 1936 as plant superintendent.

William M. Shoemaker, 56, former director and secretary of the National Vulcanized Fibre Co., Wilmington, Del., died July 30 at his home near Kennett Square, Pa. Mr. Shoemaker became associated with the fibre company in 1917. At one time he was manager of the company's Yorklyn, Del., plant. He retired in 1943.

AMERICAN PAPER AND PULP ASSOCIATION'S PAPER PRODUCTION RATIO REPORT

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	June 30	July 7	July 14	July 21	July 28
1951	95.7	62.6	94.6	99.2	100.1
	July 1	July 8	July 15	July 22	July 29
1950	97.7	51.8	92.9	96.6	99.9

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1950	92.6	95.6	96.7	95.4	94.4	97.7	85.3	99.6	96.1	101.0	99.6	91.2	95.8
1951	99.3	101.3	101.9	102.8	102.5‡	100.2‡	89.1‡						

‡ Preliminary.
r Revised.

COMPARATIVE YEARLY SUMMARIES

	1944	1945	1946	1947	1948	1949	1950	1951
Year to Date	87.8	87.1	99.5	103.6	97.6	85.4	94.4	99.9
Year Average	88.1	89.4	101.1	104.3	96.2	88.6	95.8	

PAPERBOARD OPERATING RATIOS†

	June 30	July 7	July 14	July 21	July 28
1951	103	62	83	94	97
	July 1	July 8	July 15	July 22	July 29
1950	94	55	82	95	96

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1950	88	92	91	92	91	94	82	100	98	102	101	95	94
1951	102	105	104	105	104	103	84						

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

Note: The chart shows the ratio through December 1950 on the basis of 6-day capacity. Beginning with January 1950 the ratio is shown on the new basis of normal 6 and 7-day capacities by the colored line.

Paperboard operating ratios continue on the basis of a 6-day week.

† Per cents of operation based on "trim-hours" reported to the National Paperboard Association.

Sandy Hill
IRON & BRASS WORKS
PAPER MACHINERY SPECIALISTS
HUDSON FALLS, N. Y.
Builders of
SANDY HILL, BERTRAMS AND KAMYR EQUIPMENT

CHAS. T. MAIN, INC.
CONSULTING ENGINEERS
Process Studies, Design, Specifications and Engineering Supervision
PULP AND PAPER MILLS
Steam, Hydraulic and Electrical Engineering
Reports, Consultation and Valuations
80 Federal Street Boston 10, Mass.

A. M. MEINCKE & SON, INC.
Materials for Paper Making
7 SO. DEARBORN ST.
CHICAGO, ILL.

nalco
WATER TREATMENT
BOILER WATER
SLIME CONTROL
ANTIFOAM
SIZE CONTROL
PITCH CONTROL
Gets Dependable Results
NATIONAL ALUMINATE CORP.
6221 W. 66th Place • Chicago 38, Illinois

THE RUST ENGINEERING COMPANY
Engineers and Constructors
Pittsburgh, Pennsylvania
Complete Service for
PULP AND PAPER MILLS—PLANTS AND FACILITIES
DESIGN, CONSTRUCTION, MODERNIZATION

Appleton Felts
FOR DESIGN AND FINISH
APPLETON WOOLEN MILLS
APPLETON, WIS.

CLEARING HOUSE

HELP WANTED

chemist or chemical engineer

Man, 25 to 35 years of age, with creative ability to develop new laminated plastics products. Experience in laminated plastics, paper converting or plywood, desirable. Bachelor's degree from a recognized school.

This position is in our modern post-war constructed plant in Coshocton, Ohio. Salary commensurate with experience and ability. Excellent facilities and working conditions.

Please Mail Replies,
Giving Complete Information, to:
Technical Employment, Chemical Department

GENERAL ELECTRIC

PITTSFIELD, MASS.

Well known manufacturer of paper finishing machinery requires services of a competent representative to call on the industry. Must be well versed in paper making and finishing. Previous sales experience desirable but not essential. All replies confidential. Reply in detail giving experience and salary required.

Address Box 51-404 care Paper Trade Journal.

A-18

WANTED
SPARE MACHINE TENDER

Board Mill in New England has an opening for an energetic "Cylinder Board Machine Tender" who will act as Spare and also do other important work.

We consider this a good opportunity for the right man.

If you are available, write Box 51-408 Paper Trade Journal giving experience, references and age.

A-24

WASHINGTON REPRESENTATIVE

and Staff Executive. Successful record of accomplishment in Washington, and in Sales and Administrative functions. Pulp, Paper, Specialties. Energetic and versatile. Now employed. Seeking permanent connection. Address Box 51-413 care Paper Trade Journal.

A-24

MASTER MECHANIC for progressive board mill. Good salary, good working conditions. Address Box 51-383 care Paper Trade Journal.

A-10

HELP WANTED

ASSISTANT MILL MANAGER

Opening available for the position of Assistant Mill Manager in large Eastern Canadian Newsprint Mill. Applicants must have proven executive and operating ability and be capable of assuming charge of all mill operations. Excellent opportunity for advancement to higher executive position with sound progressive company. Housing in Company townsite.

Age requirements 28 to 35 years.

Applicants please give complete details of experience and personal history. All replies confidential.

Box No. 51-401 care Paper Trade Journal.

A-31

IN SOME MILL there is an experienced Fourdrinier Machine Tender looking for promotion. Have opening for an Assistant Superintendent, working with two others (tour) in a two machine M.G. Specialty mill located in Lake States. Replies will be held in confidence; give complete details about self in first letter. Reply Box 51-384 Paper Trade Journal.

A-10

CHEMIST OR CHEMICAL ENGINEER

To do research and development work in Technical Service Department of leading specialty paper bag converter. Recent graduate acceptable.

Union Bag & Paper Corp.
Hudson Falls, New York

A-10

WANTED—Research chemist, interested in exploration of the development and substitution of synthetic materials for natural cellulosic products. Fine opportunity for the right man to engage in long term development project. Location in New York State. Send complete resume of industrial training and education with letter of application to Box 51-345 care Paper Trade Journal.

A-10

WANTED — Machine Tenders and Back Tenders for corrugating medium and liner mill. Fourdrinier and cylinder machines. Located in Western Pennsylvania; good working conditions; pleasant surroundings and very good labor relations. Call collect—Tarentum 1470. TARENTUM PRODUCTS CORPORATION, Tarentum, Pa.

TF

HELP WANTED

MEN WANTED—POSITIONS OPEN

We can place—production mgr. Cylinder board mill, salary range $8,000 to $12,000; Cylinder, Fourdrinier and Yankee machine foremen; bleach house foreman; man to head up quality control laboratory, board mill.

Master mechanics, plant engineers, designers and draftsmen; chemists, chemical engineers and laboratory men; chief power plant engineers; salesmen and sales engineers; beater engineers and head beater engineers; machine tenders and back tenders. LIST YOUR CONFIDENTIAL APPLICATION WITH US to keep informed of attractive positions open in the pulp and paper mills.

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St., Boston 8, Mass.
SPECIALISTS IN PLACING PULP AND PAPER MILL EXECUTIVES

A-10

PAPERBOARD SALESMAN

A real opportunity in the New York metropolitan area for a man with paperboard or paper experience, to represent a quality mill making all grades of folding paperboard. Liberal drawing account. State full qualifications. Address Box 51-417 care Paper Trade Journal.

A-10

SALARIED POSITIONS $3,500 to $35,000. We offer the original personal employment service (established 41 years). Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars. R. W. BIXBY, INC.—117 Dun Bldg., Buffalo, 2, N. Y.

TF

WORKING SUPERINTENDENT for small fast growing Eastern mill making lightweight specialties. Cylinder machine experience essential. State qualifications and salary expected. Address Box 51-87 care Paper Trade Journal.

TF

TOUR BOSS for a high grade Board Mill located in the East. Must be able to handle men and get results. State experience and salary expected. Address Box 51-389 care Paper Trade Journal.

A-17

WANTED—Working Master Mechanic. Must be thoroughly experienced in paper mill operations and able to handle men and get work done. Will pay top salary to man meeting these requirements. Reply Sangamon Paper Mills, Inc., 137 W. Pershing Road, Chicago, 9, Ill.

A-10

NIGHT SUPERINTENDENT Wanted—Experienced on Yankee Fourdrinier southeast. Excellent opportunity. Permanent. Good living conditions. Address Box 51-402 care Paper Trade Journal.

A-10

WANTED—TOUR BOSS for one machine mill, in the Mid-West, manufacturing Jute Test Liner, Set-up and Folding Boxboards. Must be experienced and able to handle help. Reply to Box 51-406 care Paper Trade Journal.

A-17

MAN—Experienced in both wet and dry waxing and maintaining converting equipment—good opportunity. Location, Eastern Seaboard. Address Box 51-409 care Paper Trade Journal.

A-10

WANTED—Young Chemical Engineer with some experience in pulp and paper manufacture for important research in pulping. Position may lead to new large industrial development. Give full details education, experience, personal data. Salary commensurate with experience. Address Box 51-414 care Paper Trade Journal.

A-24

HELP WANTED

WANTED—TOUR BOSS for folding and set-up box board mill in the East. Address Box 51-399 care Paper Trade Journal. A-17

WANTED—Thoroughly experienced Millwright Mechanic in three machine paper mill on Pacific Coast. Replies to Box 51-403 care Paper Trade Journal. A-17

TOUR BOSS with experience in Cylinder Machines producing various boards. Rotating shifts, steady employment. Mill in Massachusetts. In reply give full details including salary required. Address Box 51-410 care Paper Trade Journal. A-24

SITUATIONS WANTED

EXECUTIVE ACCOUNTANT COMPTROLLER

Capable, cost minded administrative executive, age 40, available immediately. Fully experienced in multi-plant paperboard, folding carton and printing industry. Box 51-197, Paper Trade Journal. A-10

SITUATIONS WANTED

PRODUCTION MANAGER

Paper Bag Mfg.—over 30 years experience—thoroly familiar all phases including Scheduling, Inventory control, Mill specifications and Sales. Also experience Purchasing & Traffic. A good all-around man for your organization. Excellent references. Address Box 51-386 care Paper Trade Journal. A-10

PAPER CONVERTING ENGINEER

with 6 years actual experience on bag, coating, waxing and printing equip. in design and maintenance, and 15 yrs. exp. machine and tool design. Age 40, married, energetic and efficient, good education, and would like to reside in the South West. Box 51-380 c/o Paper Trade Journal. A-10

SUPERINTENDENT or PRODUCTION ENGINEER—A practical Paper Maker with engineering background with ability to upgrade and increase production. Accustomed to handling modern high speed cylinder paper machines. Address Box 51-394 care Paper Trade Journal. A-17

SITUATIONS WANTED

SUPERINTENDENT THIRTY YEARS OF PRACTICAL EXPERIENCE MANUFACTURING HIGHEST GRADES light and heavy weight papers on modern high speed Cylinder and Fourdrinier machines folding box board, kraft, book and bond specialtied from sulphite and sulphate, groundwood, de-inked papers. Can get quality and production. Best of references. Address Box 51-415 care of Paper Trade Journal. S-7

EXECUTIVE—Middle aged—wealth of experience on high grade rag and sulphite papers. Good educational background. Has also had considerable office experience including purchasing. Address Box 51-392 care Paper Trade Journal. A-17

BOARD MILL EXECUTIVE—Has built and remodeled board mills. Middle aged. Several years with engineering firm on Pacific Coast. Knows office practice. A thorough going board man, who knows his business. Address Box 51-393 care Paper Trade Journal. A-17

PLANT MANAGER—Paper and Board and their conversion; wants challenging opportunity. Highly successful in organization; administration; labor relations and high level production. Presently employed. Address Box 51-63 care Paper Trade Journal. A-31

FOR SALE

1—Sandusky Couch Roll—126" drilled face x 22" diameter.
1—123" 3 bowl revolving reel.

BEARINGS
72—Top and bottom Dryer Bearings 7" diameter x 12" long.

BEATERS
1—Dilts Iron Tub Laboratory Beater. Beater roll 14" diameter x 10½" face.
1—Noble & Wood Cast Iron Beater—1000# capacity—roll newly refilled.

CALENDER STACKS
1—9 roll 68" Calender Stack.
1—3 roll pressure calender—32" x 108".
1—72" 4 roll calender stack. (Extra heavy duty).
1—64" Smoothing Calender Stack, 3 Iron Rolls, 2 Cotton Rolls.

CHEST
1—Cast Iron Stock Chest, 25' long x 6' high. (With agitator).

CHIPPER
1—24" Murray 4 knife Chipper—anti-friction bearings.

CRUSHER & HAMMERMILL
1—Murray Chip Crusher.
4—Jeffrey Hammermill.

CYLINDER MOLDS
2—30" diameter x 72" face.
1—28" diameter x 79" face.
5—36" diameter x 54" face.
1—36" diameter x 90" face.
1—48" diameter x 72" face.
4—36" diameter x 78" face.
1—30" diameter x 92" face.
1—36" diameter x 72" face.

DRIVES
1—25½ Reeves Drive.
1—24 Reeves Drive
1—Reliance Electric Drive, complete with 5 gear head motors.
1—23 Reeves Drive (totally enclosed).

DRYERS
1—Complete unit, consisting of 6 dryers, 36" diameter x 30" face, including frames, gears, anti-friction bearings.
9—24" diameter x 48" face.
1—30" diameter x 96½" face.
1—30" diameter x 145" face.
1—24" diameter x 130" face.
1—48" diameter x 79" face.
2—Dryers 48" diameter x 134" face.
1—24" diameter x 92½" face.
3—24" diameter x 48" face.
1—84" diameter x 48" face.
1—60" diameter x 68" face.
1—36" diameter x 66" face.
1—30" diameter x 61" face, complete with frames.
8—24" diameter x 60" face.

GUILLOTINE CUTTER
1—42" Cutter.

FLAT SCREENS
1—6 plate Sharrie Flat Screen
2—Packer, 12 plate, roller shoe type.

JORDANS
1—Horne Jordan.
2—Noble & Wood Mammoth.

LIME SLUDGE FILTERS
3—IMPCO Lime Sludge Filters, vacuum type, 5' diameter x 4' face.

MOTORS
Write us regarding your requirements.

PRESSES
3—Sets Primary Presses, complete, 148" face. Anti-friction bearings. Also all types of rolls for 149" wet end.

PULLEYS
Various sizes and assorted pulleys.

PULPERS
1—Jones Pulper. Complete with motor and drive.
1—Noble & Wood Pulper—Iron Tub.
1—Lamaye Pulper.

PUMPS
Various sizes of Centrifugal and Plunger Pumps. Write us regarding your particular requirements.
4—Sharrie Brothers circulating pumps, each 4,000 g.p.m.

REEL
1—123"—3 bowl Revolving Reel.

REFINERS
2—21 Claflin Refiners.

ROLLS
Felt, Table, Press, Breast, Couch, etc. Various sizes and types. (Bronze, Rubber, Iron, etc.)

ROTARY SCREENS
1—22 Bird Rotary Screen.
1—21A Bird Rotary Screen.

SAVEALLS
1—25 Bird Saveall.
2—Savealls, 36" diameter x 136" face cylinder molds, iron end vats.

SHREDDERS
2—Daniels Rag Cutters.

SLITTERS & WINDERS
1—42" Cameron—Type 00-4-B.
1—113" 2 drum Waldron.
2—112" Cameron—Type 16.
1—104" Beloit two drum winder.
1—42" Cameron Constant Tension with pneumatic control.
1—42" Cameron—Type 6.
1—52" Cameron—Type 8-S.
1—62" Cameron—Type 36-3A.
1—42" Johnstone Slitter.
1—92" Moore & White 4 drum winder.
1—82" Cameron—Type 10-16.
1—87" Cameron—Type 10.
1—84" Cameron—Type 10-6.

STOCK PUMPS
1—10 x 20 Sharrie Duplex.
1—7 x 16 Sharrie Duplex.
Advise as to your requirements.

SUCTION COUCH ROLL
1—Sandusky Couch Roll 120" drilled face x 22" diameter.

SUCTION BOXES
2—136" face Suction Boxes.

THICKENER
1—IMPCO Thickener—Cylinder mold 36 x 78.

VACUUM PUMPS
1—H-82 Nash, for Fulton-Midwest System.

WET MACHINE
1—77" Rogers Wet Machine.

YANKEE DRYERS
1—48" Face x 94" Diameter, Frames & Bearings.
1—68" face x 60" diameter including frames and anti-friction bearings.
1—64" face x 60" diameter, including frames and bearings, also 2 dryers 20" diameter x 64" face.

We are always in the market to purchase your surplus or idle machinery. What have you to offer?
Wanted Cylinder and Fourdrinier Machines (complete mills).

Paddy Ross, Pres. **J. J. ROSS COMPANY** Ben Kurz, Treas.
250 Frelinghuysen Ave. Tel.—Bigelow 3-3720 Newark 5, N. J.

FOR SALE

FOR SALE

2 good used 8 plate Packer Screens with 3 new Witham vats

1—Sandusky Suction couch roll — 14-9/16" diameter — will take sheet 70" to 106"

EMPIRE BOX CORPORATION OF STROUDSBURG

Stroudsburg, Pa.

A-10

FOR SALE
BAG MACHINES

New — High Speed Flat & Square Type Range 1⅝ x 3¼ to 10⅛ x 16½.

Address Box 51-390 care Paper Trade Journal. A-10

PAPER MILL EQUIPMENT

76" Cameron type 6 model 10 Slitter.
75" Moore & White Rewinding Reel.
52" Cameron type 8 model 5 Slitter.
48" Kidder type CH Rotary Slitter.
80" Hobbs shear cut Slitter.
42" Moore & White Sheeter with Layboy.
49" Finley Sheeter with Hamblet single pile Layboy.
58" Finley Sheeter.
100" Dilon Sheeter with 10-roll Back-Stand.
38" Acme Automatic Power Paper Cutter.
213 Industrial Paper Shredder.
NEW Hamblet Sheeters, any specification.
NEW Balers, both hand and power.

THOMAS W. HALL COMPANY, Inc.

120 West 42nd St., New York 18

(Plant at Stamford, Conn.)

TF

PAPER COATING MACHINERY MANUFACTURERS — Waxing, Oiling, Carbon Laboratory Coating and Treating and Flat Ream Measuring and Converting Machines. New improvement. THE MAYER MACHINE COMPANY, INC., 1313 Buffalo Road, Rochester, 11, N. Y. TF

FOR SALE—1—122" Heavy Duty Single Knife Horne Cutter, suitable for Board or Pulp. Address Box 51-275 care Paper Trade Journal. TF

BOUGHT — SOLD

Soda Ash—Caustic Soda
Titaniums—Lithopone—Zinc Oxides
Glycols—Cellosolves—Ethanolamines
Bichromates—Dyes—Colors, etc.

CHEMICAL SERVICE CORPORATION

60-64 Beaver St., New York 5, N. Y. A-10

FOR SALE

45" BECK ROTARY SHEETER with automatic layboy and AC motor. Excellent condition. Immediate delivery. Address Box No. 51-418 care Paper Trade Journal. A-10

FOR SALE—1 Complete Rotating Frame Drive Synchronous tie draw control, consisting of 9 sections suitable for driving Fourdrinier Paper Machine up to 170" in width, maximum speed 600 FMP, Minimum 100 FMP, complete with all controls and necessary M.G. sets. Address Box 51-416 care Paper Trade Journal. A-10

FOR SALE

Beaters

1 – Jones iron tub high speed broke beater, 70" x 48" stainless steel, new 1943.

1 – Noble & Wood iron tub, 66" x 52" R H, 3-10" bed plates, new roll installed 1940.

Calenders (Machine)

1 – 114" Bagley & Sewall 7 roll.
1 – 96" Lobdell 7 roll.
1 – 89" Farrel 7 roll.
1 – 80"; 1 – 68" and 1 – 56".

Calenders (Super)

1 – 106" 9 roll Norwood.
1 – 82" 9 roll Norwood.
1 – 72" 9 roll Holyoke.

Cutters (Sheet)

2 – 80" Hamblet single with layboy and 8 roll backstand, very good.
1 – 156" Duplex Hamblet.
1 – 130" Duplex Horne.
1 – 100" Duplex Dillon & N. & W.

Cutters (Ream)

1 – 54" 20th century Seybold.
2 – 72" Acme.
1 – 44" and 1 – 84" Smith & Winchester.

Dryers

2 – 8' x 184"
6 – 5' x 174"
1 – 6' x 103" Yankee.

Drives

1 – 9 unit complete Harland drive with M.G. set, used on 190" machine.
1 – 5 unit new Westinghouse drive with M.G. set, for use on 86" machine.
1 – 5 unit oil gear hydraulic drive.

Rolls (Press-Rubber Covered)

3 – 32" x 232"
1 – 24" x 180"
3 – 20" x 118"
4 – 16" x 66"

Rolls (Suction)

1 – 36" x 240"
1 – 30" x 166" Couch.
1 – 30" x 190" Press.

Slitters & Winders

1 – 208 Moore & White four drive.
1 – 190 No. 19 Cameron.
1 – 54 No. 10-Model 5A Cameron.

FRANK H. DAVIS COMPANY

175 Richdale Ave.

Cambridge 40, Mass.

A-17

FOR SALE

Headquarters for the Best Used Paper Mill Equipment. All fully reconditioned in Machine Shop with over 40,000 Sq. Ft. Floor Space, and approximately 50 Employees with "Know How." We offer the following for Your Inspection.

100—Chromium plated Dryers 48" dia., 46" face with bearings and Gears.
12—42" x 132" Black & Clawson Dryers complete with Gears.
4—42" x 80" Black & Clawson Dryers with double-deck frames.
4—30" x 120" New High Pressure Dryers tested 250#
1—Bagley & Sewall Baby Dryer 24" x 130" Would make excellent Winder Drum.
1—Bagley & Sewall 36" dia., 88" face Dryer. Very good condition.
1—Valley Iron Works Wet Machine 48" x 86" Cylinder Mould.
2—Bagley & Sewall Single Press Wet Machines 30" x 72" Cylinder Moulds.
1—5 Roll, 64" face Calender Stack.
1—5 Roll 66" face Calender Stack.
1—7 Roll 84" face Calender Stack.
1—60" dia., 48" face Bandless Roll, forged steel shaft.
2—E. D. Jones 50" dia., 44" face, Machined slots for bars. Used very little.
1—E. D. Jones 50" dia. 48" face Roll, Basalt Lava. Very good shape.
4—E. D. Jones 2000# Washers with 2 cylinder washers on each.
1—52" dia. x 48" face E. D. Jones Roll with machined slots for bars.
1—36" x 40" Filter Saveall for saving fines from a washer system.
4—6 Plate Packer Screens.
1—8 Plate Packer Screen.
1—10 Plate Packer Screen.
4—12 Plate Packer Screens.
1—Suction Couch or drum, 15" dia., 72" face.
3—Sets C. I. Vat Ends (Beloit)
4—No. 2 Bird Screens with copper Vats. Very good.
1—Langston Type Winder will trim 102" and make rolls 50" dia. Complete with variable speed motor and grids.
1—Warren Type 112" Winder in very good shape.
1—Cameron No. 6 Rewinder to make rolls up to 42" wide, 28" dia.
1—Noble & Wood Monarch Jordan (New fillings)
1—Emerson No. 2 Jordan with bronze fillings.
1—Standard Wiener Refiner. New.
8—E. D. Jones Cylinder Washers complete with hoisting mechanism and spouts.

OSBORNE

PAPER MILL EQUIPMENT CORP.

Fulton, N. Y. Tel. 54

A-10

FOR SALE

FOR SALE

1—Beater 1800# E. D. Jones—Wooden Tub type with Double Hood—Roll size 66 x 60. Electrical equipment consists of 75 HP Motor 570 R.P.M.—60 cycle—3 phase—440 Volts and controls—10 section V-Belt Drive with Belts. May be inspected at our Plant—Erected

Simplicity Pattern Co., Inc.

Niles, Michigan A-10

FOR SALE

20—New Felt Stretches equipped with anti-friction bearings, 1 7/16" and 1 1/8" diameter screws, 1½" dia. Acme thread 42 to 60" long inclosed in heavy brass casing. Bronze mitre gears with eccentric for operating either end independently or together. Handwheel and ratchet for cross shaft.

Osborne Paper Mill Equipment Corp.

Fulton, N. Y. Tel. 54

A-18

FOR SALE

74" WALDRON THREE UNIT COMBINED ROLLER AND BRUSH COATER. Complete with Ross Engineering Company's heating box and moisture extractor and necessary motor equipment including two 30 HP motors. In erected and can be inspected. Address Box No. 51-419 care Paper Trade Journal. A-10

FOR SALE

FOR SALE

1—84" 9-roll Supercalender Stack. Complete with drives.

J. J. ROSS COMPANY

250 Frelinghuysen Ave., Newark, N. J.
Tel BIgelow 3-3720 A-10

FOR SALE

Toilet Winders

2—72" Hudson-Sharp (Surface type winder)
1—84" Giesinger

J. J. ROSS COMPANY

250 Frelinghuysen Ave., Newark 5, N. J.
Tel BIgelow 3-3720 A-10

MACHINE FOR SALE—One 200 h.p. G.E. Type I. Form K. Frame 17, Motor Ser. 4025617, 3/60/440/600 rpm with Std. shaft extension, 2 extra drippings for Moisture Proofing. Never used since rebuilt. Address Box 51-407 care Paper Trade Journal. A-17

WANTED

WANTED TO BUY

Small, one or two machine mill for manufacture of board. Box No. 51-398, c/o Paper Trade Journal.

A-24

WANTED—Bird Saveall #6. Must be in good condition. Advise price and location. Reply Sangamon Paper Mills, Inc., 137 West Pershing Road, Chicago, 9, Ill. A-10

WANTED—17" Hudson-Sharp Napkin Folder, with or without printer. Address Box 51-400 care Paper Trade Journal. A-10

WANTED

Wanted: One — 120" or larger Cylinder or Fourdrinier Machine in good condition, complete. Box 51-411 care Paper Trade Journal.

A-20

WANTED TO BUY

A going folding box company preferably within 100 mile radius of Philadelphia

Address Box 51-405 care Paper Trade Journal.

A-18

For Sale and Wanted

all grades

WASTE PAPER

GIOVE CO., INC.

867 Water St., N. Y. Ollegan 3-6160-1-2-3
Inquiries Solicited A-19

WANTED—One Laboratory Pulp Classifier in good working condition. State price and full details. GOULD PAPER COMPANY, Lyons Falls, N. Y. A-24

WANTED—Bird Screen Plates—5 to 6 pitch —.024 to .028 cut—100" long for 36" dia. cylinder Bird 2A Screen. Address Box 51-412 care Paper Trade Journal. A-10

WANTED—Brightwood Box Machine, Shredders, Evaporators, Generators and Boilers, Slitters, Cutters, Hydraulic presses, Sheridan Presses, Dryers. Address Box 51-88 care Paper Trade Journal. T

WANTED—W & P Shredders, Evaporators, Generators and Boilers, Slitters, Cutters, Hydraulic presses, Sheridan Presses, Dryers. Address Box 51-89 care Paper Trade Journal. T

University of Maine

Lectures on Pulp and Paper Manufacture

$5.00

Limited Quantity

Lockwood Trade Journal Co., Inc. 15 W. 47th St., New York 19, N. Y.

BUY UNITED STATES SAVINGS BONDS

J. E. SIRRINE CO.
Greenville, South Carolina

PAPER & PULP MILLS • WASTE DISPOSAL • TEXTILE MILLS • APPRAISALS • WATER PLANS • STEAM UTILIZATION • STEAM POWER PLANTS • HYDRO ELECTRIC • REPORTS

SONOCO PAPER MILL CORES

RETURNABLE
DURO —our standard returnable paper mill core of pre-standard quality.
EN-DURO —a super-quality core to meet demands for extra strength and service.

RHINO
NON-RETURNABLE —an extremely tough and strong core with a low cost that meets the market for a standard product giving superior service.

Sonoco also makes paper cores for other uses. Your inquiry is invited.

SONOCO PRODUCTS COMPANY
BRANTFORD ONT. HARTSVILLE S. C. HYDE'S CONN.

COMPLETE ENGINEERING AND CONSTRUCTION SERVICES FOR THE PULP AND PAPER INDUSTRY

If you have a problem involving any of the following, you can get immediate and experienced help from EBASCO engineers and consultants:

- Design and Construction of Pulp and Paper Mills
- Steam and Hydro-Electric Power Plants
- Power Studies
- Reports and Appraisals
- Recovery Plants, Extensions and Alterations

For complete details on EBASCO'S various services send for "The Inside Story of Outside Help." Address Dept. P, Two Rector Street, New York 6, N. Y.

EBASCO

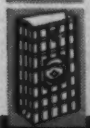
EBASCO SERVICES INCORPORATED

NEW YORK • CHICAGO • WASHINGTON, D. C.

POTDEVIN

self-opening-square

GROCERY BAG MACHINES



Standard machine for converting rolls of Kraft or sulphite paper into finished, trade-marked bags.

Models for producing the popular grocery bag range from ¼ lb. to 35 lb. inclusive. Potdevin Aniline Printing Press connected to Bag Machines will turn out printed bags in one operation from the unprinted roll.
High speeds (from 275 to 450 bags per minute) quick change-over from size to size, and a minimum of adjusting, make POTDEVIN machines the favorite in bag plants all over the world.

Consult our engineers on any problem. No obligation. Literature on request.

POTDEVIN MACHINE CO.

1223 38th St., Brooklyn 18, N. Y.

Designers and manufacturers since 1893 of equipment for Bag Making, Printing, Coating, Gluing and Labeling.

POTDEVIN

WHERE TO BUY

ABRASIVES
Monsanto Chemical Co.
Naugatuck Chemical Division of U. S. Rubber Co.
Norton Co.
Simonds Abrasive Co.

ADHESIVES
American Cyanamid Company Plastics & Resins Division
E. I. Du Pont De Nemours & Co., Inc.
The Goodyear Tire & Rubber Company
Monsanto Chemical Co.
Morningstar, Nichol, Inc.
National Starch Products, Inc.
Nopco Chemical Co.
Plaskon Division, Libbey-Owens-Ford Glass Co.
Reichhold Chemicals, Inc.
Stein, Hall & Co., Inc.

ADJUSTABLE SHAKE MOTION
Manchester Machine Co.
Rice Barton Corporation

ADJUSTABLE TILTING MOTOR BASE
Lovejoy Flexible Coupling Co.

AGITATORS
American Paper Machy. & Engrg. Works, Inc.
Appleton Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
D. J. Murray Mfg. Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.
Shartle Brothers Machine Co.

ALLOYS
Michigan Steel Casting Co.

ANTIFOAM
American Cyanamid Company Industrial Chemicals Division
National Aluminate Corp.
Nopco Chemical Co.

APRON CLOTH
Williams-Gray Co.

BAG MACHINES
Dilts Machine Works
Potdevin Machine Co.
H. G. Weber & Co., Inc.

BALL MILLS
F. L. Smidth & Co.

BARK BURNER
Combustion Engineering-Superheater, Inc.
Hoft Company, Inc.
Nichols Engrg. & Research Corp.

BARKERS AND CHIPPERS
Allis-Chalmers Mfg. Co.
Appleton Machine Co.
Carthage Machine Co.
D. J. Murray Mfg. Co.
Valley Iron Works Co.

BARS
Dilts Machine Works
E. D. Jones & Sons Co.
The Moore & White Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

BASIC WEIGHT SCALES
Thwing-Albert Instrument Co.

BEARINGS
The Bagley & Sewall Company
Black Clawson Company
E. D. Jones & Sons Co.
Magnus Metal Corp.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
SKF Industries
Stephens-Adamson Mfg. Co.
Timken Roller Bearing Co.
Valley Iron Works Co.

BEATERS AND JORDANS
American Paper Machy. & Engrg. Works, Inc.
The Appleton Machine Co.
Black Clawson Company
Dilts Machine Works
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Morden Machines Co.
J. J. Ross Company
Ross Paper Machy. Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

BED PLATES
Bahr Brothers Mfg. Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Farrel-Birmingham Co., Inc.
E. D. Jones & Sons Co.
Lakewood Div., Lukens Steel Co.
Rice Barton Corporation
Shartle Brothers Machine Co.
Valley Iron Works Co.

BELTING
Allis-Chalmers Mfg. Co.
Goodrich, B. F., Co.
The Goodyear Tire & Rubber Company
Link Belt Company

BIN DISCHARGERS
Hoft Company, Inc.
Stephens-Adamson Mfg. Co.

BLEACHING AGENTS
E. I. Du Pont De Nemours & Co., Inc.
General Dyestuff Corp.
Rohm & Haas Co.
Virginia Smelting Co.

BLEACHING APPARATUS
E. D. Jones & Sons Co.
Perkins & Sons, Inc., B. F.
Moore & White Co.
Niagara Alkali Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

BLOW PIPES & PITS
Carthage Machine Co.
Kalamazoo Tank & Silo Co.
Moore & White Co.
Murray Mfg. Co., D. J.
Walworth Company

BOILERS
Babcock & Wilcox Co.
Combustion Engineering-Superheater, Inc.

BOTTOMS
Kalamazoo Tank & Silo Co.
Valley Iron Works Co.

BOXBOARD SCALES
Thwing-Albert Instrument Co.

BRUSH ROLLS
M. W. Jenkins Sons, Inc.
Gus Reidel & Son

BRUSHES
M. W. Jenkins Sons, Inc.
Gus Reidel & Son
The Sandy Hill Iron & Brass Works
Smith Winchester Mfg. Co.

BURSTING TESTERS
B. F. Perkins & Son Inc.
Testing Machines, Inc.

CALENDERS
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Downingtown Mfg. Co.
Farrel-Birmingham Co., Inc.
Lobdell United Co.
Edward J. McBride
The Moore & White Co.
Perkins & Sons, Inc., B. F.
Rice Barton Corporation
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

CARRIER ROPE
Williams-Gray Co.

CASEIN
American Cyanamid Co.
Industrial Chem. Div.
Bunge Pulp & Paper Co.
Hercules Powder Co.

CASTINGS
Appleton Machine Co.
The Bagley & Sewall Company
Black Clawson Company
Babcock & Wilcox Co.
Carthage Machine Co.
Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Hamblett Machine Co.
Lobdell United Co.
Magnus Metal Corp.
Michigan Steel Casting Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Walworth Company

CENTRIFUGAL MACHINERY
Bird Machine Co.
Nichols Engrg. & Research Corp.
Ross, J. O., Engrg. Co.
Shartle Brothers Machine Co.

CHAINS
Stephens-Adamson Mfg. Co.

CHEMICAL COTTON PULP
Hercules Powder Co.

CHEMICALS
American Cyanamid Co., Industrial Chems. Div.
Ansul Chemical Co.
Bunge Pulp & Paper Co.
Calco Chemical Co.
Calgon, Inc.
Diamond Alkali Co.
Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.
General Dyestuffs Corp.
Geigy Co., Inc.
B. F. Goodrich Chemical Co.
Gottesman & Co.
Hercules Powder Co.
Hooker Electrochemical Co.
The Kinsley Chemical Company
Monsanto Chemical Company
National Aluminate Corp.
Naugatuck Chemical Division of U. S. Rubber Co.
Niagara Alkali Company
Nopco Chemical Co.
Pittsburgh Plate Glass Co., Columbia Chemical Division
Reichhold Chemicals, Inc.
Rohm & Haas Co.
Virginia Smelting Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

CHESTS
The Bagley & Sewall Company
E. D. Jones & Sons Co.
Kalamazoo Tank & Silo Co.
Shartle Bros. Mch. Co.

CLEANING MATERIALS
American Cyanamid Company, Industrial Chemicals Division
The Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.
General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Pittsburgh Plate Glass Co.
Wyandotte Chemicals Corp., J. B. Ford Division

CLUTCHES
Appleton Machine Co.
The Bagley & Sewall Company
Black Clawson Company
Farrel-Birmingham Co.
Hudson-Sharp Mch. Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Bros. Mch. Co.
Stephens-Adamson Mfg. Co.

COATING MACHINERY
Dilts Machine Works
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
The Mayer Machine Co., Inc.
Moore & White Co.
Pendevin Machine Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corporation, John
Weber, Herman G., & Co., Inc.

COATING MATERIALS
American Cyanamid Company, Industrial Chemicals Division
E. I. Du Pont De Nemours & Co., Inc.
B. F. Goodrich Chemical Co.
The Goodyear Tire & Rubber Company
Hercules Powder Co.
J. M. Huber Corp.
Monsanto Chemical Company
Naugatuck Chemical Division of U. S. Rubber Co.
Nopco Chemical Co.
Pittsburgh Division, Libbey-Owens-Ford Glass Co.
Reichhold Chemicals, Inc.
Wyandotte Chemicals Corp., Michigan Alkali Div.

COGS
The N. P. Bowsher Co.

COMPLETE FOURDRINIER ROLL GRINDING
Manchester Machine Co.

COMPRESSORS
Allis-Chalmers Mfg. Co.
Nash Engineering Co.
Roots-Connersville Blower Corp.

CONDENSATE FILTERS
Hungerford & Terry, Inc.
The Permutit Company

CONSISTENCY REGULATORS
Askania Regulator Co.
Bird Machine Company
DeZurik Shower Company
Paper & Industrial Appliances

CONSTRUCTION CONTRACTORS
C. M. Guest & Sons

CONSULTING ENGINEERS
Black Clawson Company
Dilts Machine Works
Ebasco Services
Frank W. Egan & Co.
Alvin E. Johnson & Co., Inc.
Main, Inc., Chas. T.
The Rust Engrg. Co.
Shartle Bros. Mch. Co.
J. E. Sirrine & Co.
Frank C. Vaughan
John Waldron Corp.
H. G. Weber & Co., Inc.

CONTINUOUS DIGESTER
Paper & Industrial Appliances

CONTROLLERS
Black Clawson Company
The Brown Instrument Co.

CONTROLS
The Brown Instrument Co.
Johnson Corp.
Foxboro Control Co.
Shartle Bros. Mch. Co.
Stickle Steam Specialties Co.

CONVERTING MACHINERY
The Bagley & Sewall Company
Egan, Frank W., & Co.
John Waldron Corp.
Dilts Machine Works

CONVEYORS
Black Clawson Company
Murray, D. J., Mfg. Co.
Ross Engineering Corp., J. O.
Shartle Brothers Mch. Co.
Stephens-Adamson Mfg. Co.

CORES
Elizabeth Paper Co.
Smith & Winchester Mfg. Co
Sonoco Products Co.

CORROSION RESISTANT
Amercoat Corporation

COTTON LINTER
Alpha Cellulose Corp.
Railway Supply & Mfg. Co.

COTTON PULP
Alpha Cellulose Corp.

COUCH ROLLS
Beloit Iron Works

COUPLINGS
The Bagley & Sewall Company
Black Clawson Company
Farrel-Birmingham Co., Inc.
E. D. Jones & Sons Co.
Lovejoy Flexible Coupling Co.
Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works
Waldron Corp., John

CRANES
Cleveland Crane & Engrg. Co
Whiting Corp.

CURL TESTER
Thwing-Albert Instrument Co.

CUTTERS
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Dilts Machine Works
Gibbs-Brower Company, Inc
Graphic Arts International Corp.
Thomas W. Hall Co.
Harris-Seybold Co.
Jagenberg-Werke Akt. Ges.
Moore & White Co.
Perkins & Son, Inc., B. F.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Taylor, Stiles & Co.
Works
The Smith & Winchester Mfg. Co.

CYLINDER MOULDS
Manchester Machine Co.
Rice Barton Corporation

CYLINDERS
M. W. Jenkins Sons, Inc.

DAMPENERS
Perkins & Son, Inc., B. F
Valley Iron Works Co.

DECKLE WEBBING
Williams-Gray Co.

DEFIBRATORS
American Defibrator Co.

DE-INKING
Dilts Machine Works
General Dyestuff Corp.
Kinsley Chemical Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

When Men, As Well As Bicycles, Wore
HANDLEBARS

Say, do you remember the old fashioned bike
And all the flat tires you got on the pike?
And do you remember the "Holyoke plan"
Your grandfather worked before Dad was a man?

How he worked round the clock if his mate was away?
How he sweated and swore — the machine making "hay"?
'Cause the felt wasn't porous, the piles of wet broke
Were almost enough to collapse the poor bloke.
Today, if you want good production in paper -
All you do is to specify "press felt by Draper."

The DRAPER Felt

DRAPER BROTHERS COMPANY
Woolen Manufacturers Since 1856
CANTON, MASSACHUSETTS

WEST VIRGINIA PULP and PAPER COMPANY

230 Park Ave.
New York 17, N. Y.

35 East Wacker Drive
Chicago 1, Ill.

Lincoln-Liberty Bldg.
Philadelphia 7, Pa.

503 Market St.
San Francisco 5, Calif.

Manufacturers of West Virginia Mill Brand Papers

SUPERCALENDERED
ENGLISH FINISH
LITHOGRAPH
LABEL
OFFSET
EGGSHELL
MUSIC
POSTER
BOND
WRITING

ENVELOPE
MIMEOGRAPH
INDEX BRISTOL
POST CARD
COVER
CUP AND CONTAINER
FILE FOLDER
TAG
COATED
MACHINE COATED

KRAFT LINER BOARD
KRAFT CONVERTING AND KRAFT ENVELOPE

MILLS

Mechanicville, New York
Luke, Maryland
Covington, Virginia
Tyrone, Pennsylvania
Williamsburg, Pennsylvania
Charleston, South Carolina

PRICE & PIERCE LTD.

Wood Pulp and Paper Agents

60 E. 42 ST. N. Y. 17

DEINKING CHEMICALS
E. I. Du Pont De Nemours & Co., Inc.
General Dyestuff Corp.
Kinsley Chemical Co.
Nopco Chemical Co.

De-MINERALIZING EQUIPMENT
Hungerford & Terry, Inc.
The Permutit Company

DEMULSIFIERS
Wyandotte Chemicals Corp., Michigan Alkali Div.

DENSOMETERS
Bunge Pulp & Paper Co.
W. & L. E. Gurley

DESIGN CONSTRUCTION
Ebasco Services

DETERGENTS
American Cyanamid Company, Industrial Chemicals Division
Calgon, Inc.
General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

DEWAXING CHEMICALS
American Cyanamid Company, Industrial Chemicals Division
General Dyestuff Corp.
Nopco Chemical Co.

DIFFERENTIAL SCALES
Thwing-Albert Instrument Co.

DIGESTERS
Babcock & Wilcox Co.
Blaw Knox Company
Chicago Bridge & Iron Co.
Combustion Engineering-Superheater, Inc.
Lukenweld
Paper & Industrial Appliances
Pusey & Jones Corp.

DISPERSING AGENTS
Calgon, Inc.
General Dyestuff Corp.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

DOCTORS
The Bagley & Sewall Company
Bird Machine Company
Black Clawson Company
Downingtown Mfg. Co.
Lobdell United Co.
Ledding Engineering Corp.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

DOCTOR BLADES
The Bagley & Sewall Company
Bird Machine Company
Ledding Engrg. Corp.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Simonds Saw & Steel Co.

DRIERS
The Bagley & Sewall Company
Black Clawson Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Lukenweld
The Moore & White Co.
Murray Mfg. Co., D. J.
J. J. Ross Company
Red-Ray Mfg. Co., Inc.
Rice Barton Corporation
Ross Paper Macky, Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

DRILLED SUCTION COUCH ROLLS
Manchester Machine Co.

DRILLED SUCTION DRUM ROLLS
Manchester Machine Co.

DRIVES
Allis-Chalmers Mfg. Co.
Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Bird Machine Co.
Black Clawson Company
Dilts Machine Works
Downingtown Mfg. Co.
Fairbanks, Morse & Co.
Farrel-Birmingham Co.
General Electric Company
Gibbs-Brower Company, Inc.
Moore & White Co.
Murray, D. J., Mfg. Co.
Pusey & Jones Corp.
Rice Barton Corporation
J. J. Ross Company
Ross Paper Macky, Corp.
The Sandy Hill Iron & Brass Works
Shartle Bros. Mch. Co.
Stephens-Adamson Mfg. Co.
Valley Iron Works Co.
Westinghouse Electric Corp.

DRUM WINDERS
Manchester Machine Co.
Rice Barton Corporation

DRYER DRAINAGE
Stickle Steam Specialties Co.

DRYER ROLL PYROMETER
Thwing-Albert Instrument Co.

DUSTERS
Appleton Machine Co.
Downingtown Mfg. Co.
Frank W. Egan & Co.
M. W. Jenkins Sons, Inc.
E. D. Jones & Son Co.
Moore & White Co.
D. J. Murray Mfg. Co.
John Waldron Corp.

DUSTING BRUSHES
M. W. Jenkins Sons, Inc.

DYESTUFFS
American Cyanamid Company, Calco Chemical Div.
Bunge Pulp & Paper Co.
Ciba Company
E. I. du Pont de Nemours & Co., Inc.
Geigy Co., The
General Dyestuffs Corp.
National Aniline Division, Allied Chemical & Dye Corp.

ELECTRIC HYGROMETER
Thwing-Albert Instrument Co.

EMBOSSING MACHINES
Dilts Machine Works
Egan, Frank W., & Co.
John Waldron Corp.

EMBOSSING ROLLS
The Appleton Machine Co.
Gibbs-Brower Company, Inc.
Holyoke Machine Co.
Northern Engraving & Mch. Co.
B. F. Perkins & Son, Inc.
John Waldron Corp.
Wheeler Roll Co.

EMULSIFIERS
General Dyestuff Corp.
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp.

ENZYMES
Rohm & Haas Co.
Vanderbilt Co., R. T.

EVAPORATORS
Davis Engrg. Corp.
Goslin-Birmingham Mfg. Co., Inc.
Murray, D. J., Mfg. Co.
Swenson Evaporator Co., Div. of Whiting Corp.

EXPANDERS
Mount Hope Machinery Co.

FANS
General Electric Co.
B. F. Perkins & Son, Inc.
Ross Engineering Co., J. O.

FEEDERS
Hoff Company, Inc.
Merrick Scale Mfg. Co.
The Permutit Company
Stephens-Adamson Mfg. Co.

FELTS
Appleton Woolen Mills
Asten-Hill Mfg. Co.
Draper Bros. Corp.
Huyck & Son, F. C.
Lockport Felt Co.
Merey Paper Mill Supply Co.
Shuler & Benninghofen
Waterbury Felt Co.
Waterbury, H., & Sons Co.
Williams-Gray Co.

FELT CLEANERS
Calgon, Inc.
General Dyestuff Corp.
Nopco Chemical Co.

FELT CONDITIONERS
Bird Machine Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works

FELT GUIDES
Black Clawson Company
Frank W. Egan & Co.
Gilbert & Nash Co.
Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

FILLERS
American Cyanamid Company, Industrial Chemicals Division
A. M. Meincke & Son, Inc.
Vanderbilt Co., R. T.
Wyandotte Chemicals Corp., Michigan Alkali Div.

FILTERS
Bird Machine Company
Holyoke Machine Co.
J. M. Huber Corp.
Hungerford & Terry, Inc.
Johnson Corp.
Moore & White Co.
J. O. Ross Engrg. Corp.
The Sandy Hill Iron & Brass Works
Walworth Company

FITTINGS
The Bagley & Sewall Company
Crane Company
Shartle Bros. Mch. Co.
Walworth Company

FLEXIBLE COUPLINGS
Egan, Frank W., & Co.
Lovejoy Flexible Coupling Co.
John Waldron Corp.

FLOORING, GRATING AND TREADS
The Goodyear Tire & Rubber Company
Norton Co.

FLOW BOXES, STAINLESS-CLAD
Lukens Steel Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works

FORK LIFT TRUCKS
Clark Equipment Company, Industrial Truck Division
Elwell Parker Elec. Co.
Towmotor Corp.

FORMATION TESTERS
Thwing-Albert Instrument Co.
Williams Apparatus Co., Inc.

FOURDRINIERS
Beloit Iron Works
Black Clawson Company
Downingtown Mfg. Co.
The Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

FREENESS TESTERS
Testing Machines, Inc.
Williams Apparatus Co.

FURNACES
Heil Company, Inc.

GASKETS
The Goodyear Tire & Rubber Company

GEARS
The Bagley & Sewall Company
Black Clawson Company
De Laval Steam Turbine Co.
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Stroh Process Steel Co.
Valley Iron Works Co.
Westinghouse Electric Corp.
Western Gear Works

GRAPPLES
Blaw-Knox Company

GRAVITY FILTERS
Holyoke Machine Co.

GRINDERS
Carthage Machine Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Lobdell United Co.
Norton Company
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Works

GRINDING WHEELS
Norton Company
Simonds Abrasive Co.

GUIDES
The Bagley & Sewall Company
Egan, Frank W., & Co.
Gilbert & Nash Co.
The Moore & White Co.
Mount Hope Machinery Co.
Rice Barton Corporation
John Waldron Corp.

GUMMING MACHINES
Dilts Machine Works
Egan, Frank W., & Co.
The Sandy Hill Iron & Brass Works

GUMS
National Starch Products, Inc.
Stein-Hall Co., Inc.

HEAT EXCHANGERS AND RECOVERY SYSTEMS
Stickle Steam Specialties Co.
Westinghouse Electric Corp.

HEATING, VENTILATING & AIR CONDITIONING
The Appleton Machine Co.
E. D. Jones & Sons Co.
General Electric Co.
D. J. Murray Mfg. Co.
Red-Ray Mfg. Co., Inc.
Ross Engineering Corp., J. O.
Stickle Steam Specialties Co.
Valley Iron Works Co.

HOSE (Air, Water, Suction, etc.)
The Goodyear Tire & Rubber Company

HUMECTANTS
Aktivin Division, Heyden Chemical Corp.
Nopco Chemical Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

IMPREGNANTS
American Cyanamid Company, Industrial Chemicals Division
B. F. Goodrich Chemical Co.

INDENTING MACHINES
Dilts Machine Works

INDUSTRIAL TRACTORS
Clark Equipment Company, Industrial Truck Division
Towmotor Corp.

INKOMETER
Thwing-Albert Instrument Co.

INSTRUMENTS, TESTING AND MEASURING
Brown Instrument Co.
Bunge Pulp & Paper Co.
Cambridge Instrument Co.
General Electric Company
W. & L. E. Gurley
S. F. Perkins & Son
Photovolt Corp.
Taylor Instrument Cos.
Testing Machines, Inc.
Thwing-Albert Instrument Co.
Williams Apparatus Co.

JOINTS
The Bagley & Sewall Company
Beloit Iron Works
Johnson Corp.

Lovejoy Flexible Coupling Co.
Rice Barton Corporation
Shartle Bros. Mch. Co.
Appleton Machine Co.
Baer Brothers Mfg. Co.
E. D. Jones & Sons Co.
Shartle Bros. Mch. Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

KNIVES
Black Clawson Company
Dilts Machine Works, Inc.
Hamblet Machine Co.
Heppenstall Company
E. D. Jones & Sons Co.
The Moore & White Co.
Simonds Saw & Steel Co.
Taylor Stiles & Co.
Valley Iron Works Co.

KRAFT WRAPPING PAPERS
Canadian Newsprint Supply Co.

LABORATORY CORRUGATOR
Thwing-Albert Instrument Co.

LABORATORY EQUIPMENT
Appleton Machine Co.
Bauer Brothers Co.
Bird Machine Company
Dilts Machine Works
W. & L. E. Gurley
Egan, Frank W., & Co.
E. D. Jones & Sons Co.
Taylor Instrument Companies
Testing Machines, Inc.
Valley Iron Works Co.
John Waldron Corp.
Williams Apparatus Co., Inc.

LAMINATING MACHINES
The Bagley & Sewall Company
Dilts Machine Works
Egan, Frank W., & Co.
Rice Barton Corporation
John Waldron Corp.

LAY BOYS
Dilts Machine Works
Gibbs-Brower Company, Inc.
Hamblet Machine Co.
Moore & White Co.

LIFT TRUCKS
Clark Equipment Company, Industrial Truck Division

LINTER COTTON
Alpha Cellulose Corp.
Railway Supply & Mfg. Co.

LINTER PULP
Alpha Cellulose Corp.

LUBRICANTS
Gulf Refining Co.
Sinclair Refining Co.

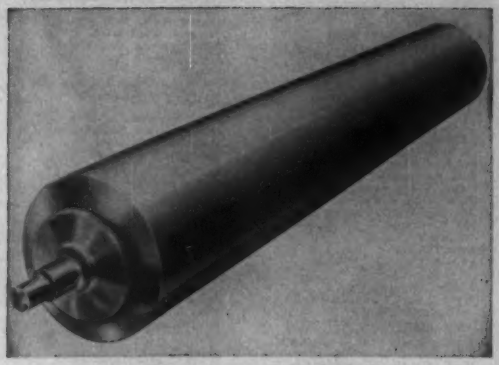
LAMINATES PAPERS, FOILS, CELLOPHANES, TO PAPERS, BOARDS WITH PASTES • GLUES • ASPHALTS

MULTI-PURPOSE
LAMINATOR
for processing paper, boards and cellulose products . . .

Better bonding... Greater productivity

HUDSON-SHARP
MACHINE CO. • GREEN BAY • WIS.
Manufacturers of
Printers, Embossers, Folders, Interfolders, Waxers, Laminators, Wrapping Machines, Core Winders, Packaging Presses, Creped Wadding Machines, Toilet Tissue and Paper Towel Units

THE all-purpose GL-2 Laminator uses materials direct from parent rolls and rewinds, after laminating with either hot or cold glues and pastes. The machine is so designed that each operating assembly can be readily changed to handle the ever-growing list of new laminants and materials. Completely flexible, it can be rearranged for longer sheet leads . . . new assemblies added . . . or old ones subtracted. Standard 60-inch unit has one hot or cold dryer and is equipped with paste or glue applicator. An asphalt applicator may also be added. Provisions are made for by-passing the sheet so that either of the two applicators can be used with equal facility. Additional drying units can be added to speed production by faster sheet curing if desired. Similar laminators are made for use with wax, crystalines and hot melts. Rewinders and backwinds of various types can be furnished. Write for complete details and specifications.



McBRIDE brings you a
Complete* ROLL *Service

PRODUCTION: Modern production facilities for large and small rolls of all types in metal, wood, and rubber covered.

ENGINEERING: McBride engineers work with you to solve individual roll problems, then supervise production to assure rolls that meet your exact needs.

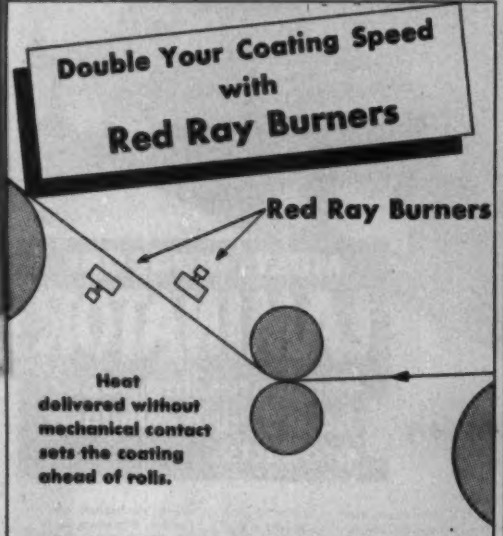
MAINTENANCE: A special department for maintenance and repair work is your assurance of prompt, top quality work.

Table Rolls	Couch Rolls	Stainless Steel Rolls
Wire Carrying Rolls	Press Rolls	Wood Rolls
Felt Carrying Rolls	Brass Rolls	Repairs to Rolls

Mc BRIDE

Edward J. McBride Co., Inc. • 1394 Adams Ave., Phila. 24, Pa.
ROLLS OF ALL TYPES FOR EVERY PURPOSE

Double Your Coating Speed with Red Ray Burners



Reduced 'Sticking' — More Production — Better Product

Red Ray Manufacturing Co., Inc.
455 West 45th Street · New York 19, N.Y.

Socony-Vacuum Oil Co.
Sun Oil Company
The Texas Company
Tide Water Associated Oil Co.

MAGAZINE REELS
Ditts Machine Works (Kohler Systems)

MATERIALS HANDLING
Clark Equipment Company
Industrial Truck Division
Cleveland Crane & Engrg. Co.
Ditts Machine Works
Shartle Bros. Mch. Co.
Stephens-Adamson Mfg. Co.
The Wellman Engrg. Co.

METAL TIRES
Stroh Process Steel Co.

MICROMETERS & CALIPERS
Farrel-Birmingham Co.
Lobdell Co.
Stephens-Adamson Mfg. Co.
Testing Machines, Inc.

MICRO-CRYSTALLINE WAXES
Barrco Oil Co.
Bunge Pulp & Paper Co.
Moore & Munger
Sun Oil Company

MOISTURE CONTENT CONTROL
Cambridge Instrument Co.
Stickle Steam Specialties Co.
Williams Apparatus Co., Inc.

MOTORS AND GENERATORS
Allis-Chalmers Mfg. Co.
Fairbanks, Morse & Co.
General Electric Company
Reliance Electric & Engrg. Co.

NEWSPRINT
Bunge Pulp & Paper Co.
Canadian Newsprint Supply Co.

NICKEL AND NICKEL ALLOYS
The International Nickel Co.

NOZZLES
Spray Engrg. Co.

PACKING BOXES
Clark Equipment Company
Industrial Truck Division
Johnson Corporation
The Moore & White Co.
Shartle Brothers Machine Co.

PALLET TRUCKS
Clark Equipment Company
Industrial Truck Division

PAPER MACHINE DRIVES
The Bagley & Sewall Company
Manchester Machine Co.
Rice Barton Corporation

PAPER MACHINES
The Bagley & Sewall Company
Beloit Iron Works
Bagley & Sewall Co.
Black Clawson Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Lakeweld
Moore & White Co.
Posey & Jones Corp.
Rice Barton Corporation
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co

PAPER MACHINE SLICES
Black Clawson Company
E. D. Jones & Sons Co.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.

PAPER TUBE MACHINERY
Dietz Machine Works
Gibbs-Brower Company, Inc
Thomas W. Hall Co.
Hudson Sharp Machine Co
Jagenberg-Werke Akt. Ges.
Langston Co., Samuel M.

PARAFFINE WAXES
Moore & Munger
Sun Oil Company

PARAFFIN WAX EMULSIONS
Nopco Chemical Co.

PASTING MACHINES
Beloit Iron Works
Black Clawson Company
Ditts Machine Wks.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc
Murray, D. J., Mfg. Co.
Moore & White Co.
Pontevin Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

PEBBLE MILLS
F. L. Smidth & Co.

PERFORATED METAL
Allis-Chalmers Mfg. Co.

pH METERS
Cambridge Instrument Co.
Thwing-Albert Instrument Co.

PIPE
Armco Drainage & Metal Products, Inc.
Babcock & Wilcox Co.
Crane Company
Grinnell Company
Michigan Steel Casting Co.
National Tube Co.
Walworth Company

PIPE FITTINGS
Armco Drainage & Metal Products, Inc.
Crane Company
Grinnell Company
Michigan Steel Casting Co.
Walworth Co.

PITCH CONTROL
American Cyanamid Company
Industrial Chemicals Division
General Dyestuff Corp.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Rohm & Haas Co.

PLASTICIZERS
American Cyanamid Company
Industrial Chemicals Division
Aktivin Division, Heyden Chemical Corp.
B. F. Goodrich Chemical Co.
Naugatuck Chemical
Division of U. S. Rubber Co.
Nopco Chemical Co.

PLATERS
Gibbs-Brower Company, Inc.
Perkins & Son, Inc., B. F.

PLATES
Armco Steel Corp.
Babcock & Wilcox Co.
J. O. Ross Engrg. Corp.
Lakenweld Division
Lukens Steel Company
Timken Roller Bearing Co.

PLUGS
The Appleton Machine Co.
Black Clawson Company
E. D. Jones & Sons Co.
Shartle Brothers Machine Co.

POPE TYPE REELS
Egan, Frank W., & Co.
Manchester Machine Co.
Rice Barton Corporation

PRECISION SAMPLE CUTTER
Testing Machines, Inc.
Thwing-Albert Instrument Co.

PRESERVATIVES
E. I. du Pont de Nemours & Co.
General Dyestuff Corp.

PRESS ROLLS
Beloit Iron Works
Rice Barton Corporation

PRESSURE FILTERS
Holyoke Machine Co.

PRESSURE VESSELS
Chicago Bridge & Iron Co.
Combustion Engineering-Superheater, Inc.

PRESSES
Black Clawson Company
Dietz Machine Works
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson-Sharp Mch. Co.
The Moore & White Co.
Pontevin Machine Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.
Waldron Corp., John
H. G. Weber & Co., Inc.
Williams Apparatus Co.

PULLEYS
Lovejoy Flexible Coupling Co.
Rice Barton Corporation

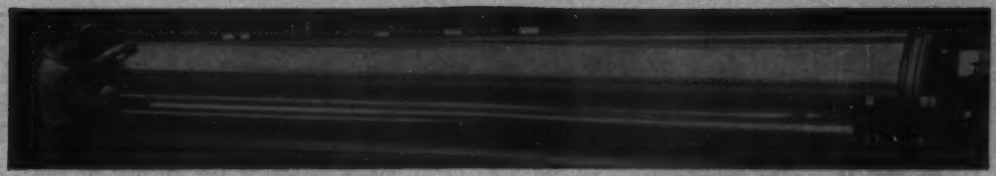
PULP CLASSIFIER
The Bauer Bros. Co.
Thwing-Albert Instrument Co

PULP CLEANERS
Nichols Engrg. & Research Corp.

PULP STOCK VALVES
Crane Company
Record Pdy. & Mach. Co.
Shartle Brothers Machine Co.

PULPERS
Aqmew, Inc.
Bauer Brothers Co.
Ditts Machine Works
E. D. Jones & Sons Co.
Morden Machines Co.
Shartle Brothers Machine Co.

PULPS
Alpha Cellulose Corp.
Brown Company
Bunge Pulp & Paper Co.
Gottesman & Co., Inc.
Lyddon & Co. (America), Inc.
Parsons & Whittemore, Inc.
Perkins-Goodwin Co.
Price & Pierce, Ltd.
Pulp and Paper Trading Co
Rentgouche Co., Ltd.



LONG ON EVERYTHING YOU REQUIRE OF CENTRIFUGAL CASTINGS!

Long in quality, and long on required physical properties, Sandusky Castings have provided satisfaction for more than forty years.

Always specify CHIEF SANDUSKY to your machine builder, and you will have the best in centrifugal castings . . . uniform, dense, and free from porosity.

• CHIEF SANDUSKY CENTRIFUGAL CASTINGS • SANDUSKY, OHIO

SANDUSKY FOUNDRY AND MACHINE CO.

PULPSTONES
Norton Company

PULP TESTERS
Paper and Pulp Testing Laboratories
Williams Apparatus Co., Inc.

PULVERIZING MILLS
Combustion Engineering-Superheater, Inc.
F. L. Smidth & Co.

PUMPS
Allis-Chalmers Mfg. Co.
Aprotex, Inc.
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Buffalo Pumps, Inc.
Byron Jackson Co.
DeLaval Steam Turbine Co.
Downingtown Mfg. Co.
Fairbanks, Morse & Co.
Gibbs-Brower Company, Inc.
Johnson Corp.
Moore & White Co.
Nash Engineering Co.
Roots Connersville Blower Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co

RADIANT BURNERS
Red-Ray Mfg. Co., Inc.

RAG COOKING PROCESSES
The Kinsley Chemical Company
General Dyestuff Corp.
Rohm & Haas Co.

RAG CUTTERS
Gibbs-Brower Company, Inc.
B. F. Perkins & Son, Inc.
Taylor-Stiles & Co.

RECOVERY SYSTEMS
Babcock & Wilcox Co.
Chicago Bridge & Iron Co.
Combustion Engineering-Superheater, Inc.
Moore & White Co.
D. J. Murray Mfg. Co.
Posey & Jones Corp.
Ross Engineering Corp., J. O
Valley Iron Works Co.

REELS
The Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Dilts Machine Works (Kohler Systems)
Egan, Frank W., & Co.
Downingtown Mfg. Co.
Hudson-Sharp Mch. Co.
Moore & White Co.
Rice Barton Corporation
Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
The Smith & Winchester Mfg Co

REFINERS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
Bauer Brothers Co.
Dilts Machine Works
Gibbs-Brower Company, Inc.
E. D. Jones & Sons Co.
Morden Machines Co.
Murray, D. J., Mfg. Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Sprout Waldron & Co., Inc.
Sutherland Refinery Corp.
Valley Iron Works

REGULATORS
APMEW, Inc.
Allis-Chalmers Mfg. Co.
Bird Machine Company
General Electric Co.
Johnson Corp.
Shartle Brothers Machine Co.
Stickle Steam Specialties Co.
Taylor Instrument Companies

RESINS
American Cyanamid Company, Plastics & Resins Division
The Dow Chemical Company
B. F. Goodrich Chemical Co.
The Goodyear Tire & Rubber Company
Hercules Powder Co.
Monsanto Chemical Company
Naugatuck Chemical Division of U. S. Rubber Co.
Nopco Chemical Co.
Plaskon Division, Libbey-Owens-Ford Glass Co.
Reichhold Chemicals, Inc.
Rohm & Haas Co., Resinous Products Div.

ROLLS
Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Dilts Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Holyoke Machine Co.
Lobdell United Co.
Edward J. McBride Co., Inc.
The Moore & White Co.
D. J. Murray Mfg. Co.
Perkins, B. F., & Sons Co.
Posey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
U. S. Rubber Co.
Valley Iron Works Co.
Waldron Corp., John
Wheeler Roll Co.

ROLL COVERS
The Goodyear Tire & Rubber Company

ROLL HANDLING EQUIPMENT
Dilts Machine Works (Kohler Systems)

ROLL STANDS
Lauzon Machine Co.
Dilts Machine Works (Kohler Systems)
Frank W. Egan & Co.
Moore & White Co.
Potdevin Machine Co.
The Sandy Hill Iron & Brass Works
John Waldron Corp.
H. G. Weber & Co., Inc.

ROPE CARRIERS
Black Clawson Co.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works

ROTARY KILNS
F. L. Smidth & Co.

ROTARY STEAM JOINTS
Johnson Corp.
The Moore & White Co.
Rice Barton Corporation
Shartle Bros. Mch. Co.

RUBBER PRODUCTS
The Goodyear Tire & Rubber Company

SATURANTS
B. F. Goodrich Chemical Co.

SATURATING MACHINES
Dilts Machine Works
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Moore & White Co.
Potdevin Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

SAVEALLS
Bird Machine Company
Chicago Bridge & Iron Co.

SAWS
Simonds Saw & Steel Co.

SCALES
Fairbanks, Morse & Co.
Merrick Scale Mfg. Co.
Testing Machines, Inc.

SCREEN PLATES
Bird Machine Company
Pitchburg Screen Plate Co.
Magnus Metal Corp.
Morey Paper Mill Supply Co.
Testing Machines, Inc.

SCREENS
Allis-Chalmers Mfg. Co.
Appleton Wire Works
Appleton Machine Company
The Bagley & Sewall Company
Bird Machine Company
Carthage Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Stephens-Adamson Mfg. Co.
Valley Iron Works Co.

EXCELSIOR FELTS & JACKETS

"EXCELSIOR" FELTS

The Trademark of Felts of Superior Quality for Every Grade of Pulp and Paper

KNOX WOOLEN COMPANY
CAMDEN, MAINE

RECORD PAPER & PULP STOCK VALVES "BONNETLESS SELF CLEARING - - - "RESIDUE POCKETLESS TYPE"

METALS — I.B.B.M., all iron, bronze or stainless steels, body parts plain or rubber lined.

The photo of 24" Fig. 241 I. B. B. M. valve while illustrating the new bottom wedge system for forced gate seating and "GUILLOTINE" edge for cleaning fibre at seat also shows the packing box and yoke as separate units. Both adjustable.

- The "FAST THREADED" screw stem and ball bearing speeds valve operation.
- The packing box is extra deep, is adjustable and provided with specialized lubricated packings and special type gland and compression bolts.
- The yoke mountings are such that yokes for various methods of gate operation are interchangeable.
- Replaceable gate edge shoes are used in valves 10" and larger. These shoes are of special value when valves are installed stem and pipe horizontal.

"RECORD PRODUCTS EXTENSIVELY USED IN DEFENSE PROJECTS"

RECORD FOUNDRY & MACHINE COMPANY

LIVERMORE FALLS, MAINE, U. S. A.

SHEET MACHINES
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Valley Iron Works Co.
Williams Apparatus Co., Inc.

SHEETERS
Jagenberg-Werke Akt. Ges.

SHOWER PIPES
Bird Machine Company
Downingtown Mfg. Co.
Moore & White Co.
Sandusky Fdy. & Mch. Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

SHREDDERS
Bauer Brothers Co.
Carthage Machine Co.
Gibbs-Brower Company, Inc.

SIZE PRESSES
Manchester Machine Co.
Rice Barton Corporation

SIZING
American Cyanamid Company, Industrial Chemicals Division
The Dow Chemical Company
du Pont, E. I., de Nemours & Co.
Glidden Company
Hercules Powder Co.
The Hubinger Co.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Stein-Hall Co., Inc.
Wyandotte Chemicals Corp., Michigan Alkali Div.

SIZING TESTER
W. & L. E. Gurley
Testing Machines, Inc.
Thwing-Albert Instrument Co.
Williams Apparatus Co., Inc.

SLIME CONTROL
The Dow Chemical Company
E. I. du Pont de Nemours & Co.
General Dyestuff Corp.
Monsanto Chemical Co.
National Aluminate Corp.
Rohm & Haas Co.
Vanderbilt Co., R. T.
Wyandotte Chemicals Corp., Michigan Alkali Div.

SLITTERS
The Bagley & Sewall Company
Black Clawson Company
Cameron Machine Co.
Carthage Machine Co.
Clark-Aiken Co.
Dietz Machine Works
Dilts Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Gibbs Brower Company, Inc.
Graphic Arts International Corp.
Thomas W. Hall Co., Inc.
Hamblet Machine Co.
Hudson-Sharp Mch. Co.
Jagenberg-Werke Akt. Ges.
Langston Co., Samuel M.
Moore & White Co.
D. J. Murray Mfg. Co.
Pendevin Machine Co.
Rice Barton Corporation
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

SMOKE STACKS
Chicago Bridge & Iron Co.

SOFTNESS-STIFFNESS TESTER
W. & L. E. Gurley
Testing Machines, Inc.
Thwing-Albert Instrument Co.

SOLUBLE OILS
American Cyanamid Company, Industrial Chemicals Division
General Dyestuff Corp.
Nopco Chemical Co.

SPECIAL MACHINERY
Dilts Machine Works
Egan, Frank W., & Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
John Waldron Corp.

SPLICING TISSUE
Bunge Pulp & Paper Co.
Williams-Gray Co.

STAINLESS STEEL
Armco Steel Corp.
Michigan Steel Casting Co.
U. S. Steel Corp.

STARCH
A. M. Meincke & Son, Inc.
Chatco Foods, Inc.
The Hubinger Co.
National Starch Products Inc.
Stein-Hall Co., Inc.

STEAM JOINTS
The Moore & White Co.
Rice Barton Corporation
Shartle Bros. Mch. Co.

STEAM SPECIALTIES
Babcock & Wilcox Co.
Combustion Engrg. Co., Inc.
Johnson Corp.
Stickle Steam Specialties Co.

STEEL
Armco Steel Corp.
Carnegie Illinois Steel Co.
Jagenberg-Werke Akt. Ges.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
U. S. Steel Corp.

STEEL, CLAD
Babcock & Wilcox Co.
Lukens Steel Company

STEEL TANKS
Chicago Bridge & Iron Co.
The Sandy Hill Iron & Brass Works

STRETCH TESTER
Thwing-Albert Instrument Co.

STUFF CHESTS
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
Rice Barton Corporation
Shartle Brothers Machine Co.
Valley Iron Works Co.

SUCTION BOXES
Black Clawson Company
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

SUCTION ROLLS
Beloit Iron Works

SULPHITE SPECIALTIES
Canadian Newsprint Supply Co.

SULPHUR
Texas Gulf Sulphur Co.

SULPHUR BURNERS
Valley Iron Works Co.

SULPHUR DIOXIDE
American Cyanamid Company, Calco Chemical Div.
Ansul Chemical Co.
Virginia Smelting Co.

SUPERCALENDERS
The Appleton Machine Co.
B. F. Perkins & Son, Inc.

SYNTHETIC LATICES
American Cyanamid Company, Industrial Chemicals Division
B. F. Goodrich Chemical Co.
The Goodyear Tire & Rubber Company
Naugatuck Chemical Division of U. S. Rubber Co.
Nopco Chemical Co.

TAKE OFF UNITS
Dilts Machine Works (Kohler Systems)

TALC
American Cyanamid Company, Industrial Chemicals Division
Vanderbilt Co., R. T.

TANKS
Chicago Bridge & Iron Co.
Kalamazoo Tank & Silo Co.
B. F. Perkins & Sons, Inc.
J. O. Ross Engrg. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

TEARING TESTERS
Thwing-Albert Instrument Co.
Testing Machines, Inc.

TENSILE TESTERS
Bunge Pulp & Paper Co.
Thwing-Albert Instrument Co.
B. F. Perkins & Son, Inc.
Testing Machines, Inc.
Nopco Chemical Co.

THICKENERS, DECKERS AND SAVEALLS
The Appleton Machine Co.
Bird Machine Company
Carthage Machine Co.
Chicago Bridge & Iron Co.
Dilts Machine Works
Downingtown Mfg. Co.
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

WILLIAMS PRECISION FREENESS TESTER

The Most Accurate Freeness Tester Ever Built

Operates on the Only Correct Principle of Freeness Testing.
Automatic Timing with Electric Stop Clock which Measures Drainage Rate through a Wire, same as on Paper Machine.

For 25 years we have developed and manufactured Pulp and Paper Testing Equipment

Pulp Testing Ovens
Sheet Moulds
Laboratory Presses
Sheet Dryers
Wood Chip Classifiers
Pebble Mills
A.S.T.M. Penetration Testers
Electric Centrifuges
Paper Moisture Testers
Smoothness Testers
Laminating and Plastic Moulding Presses

WILLIAMS APPARATUS CO., Inc.

19 Park Place — Watertown, N. Y.

TITANIUM
American Cyanamid Co., Calco Chemical Div.
E. I. du Pont de Nemours & Co.
Titanium Pigment Co.
R. T. Vanderbilt Co.

TOOLS
Walworth Company

TRACTORS AND TRUCKS
Clark Equip. Co. of Industrial Truck Div.
Elwell Parker Elec. Co.
Towmotor Corp.

TRANSMISSIONS
Dodge Mfg. Corp.
Link Belt Company
Lovejoy Flexible Coupling Co.
Stephens-Adamson Mfg. Co.

TRAPS
Crane Co.
Johnson Corporation
Shartle Bros. Mch. Co.
Stickle Steam Specialties Co.

TUBE MILLS
F. L. Smidth & Co.

TUBES
Babcock & Wilcox Co.
National Tube Co.

TURBINE MACHINES
Dilts Machine Works

TURBINE, MECHANICAL
National Tube Co.

TURN
Shartle Brothers Machine Co.
Valley Iron Works Co.

TURBINES
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
General Electric Company

UNWINDERS
Dilts Machine Works (Kohler Systems)
Egan, Frank W., & Co.
Lion Barton Corporation
John Waldron Corp.

USED EQUIPMENT
Gibbs-Brower Co.
Thomas W. Hall Co.
J. J. Ross Company
Ross Paper Machy. Corp.
Shartle Brothers Machine Co.

V-BELTS
Lovejoy Flexible Coupling Co.

VALVES
The Bagley & Sewall Company
Crane Company
Dilts Machine Works
E. D. Jones & Sons Co.
Magnus Metal Corp.
D. J. Murray Mfg. Co.
William Powell Co.
Record Fdy. & Mch. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Stickle Steam Specialties Co.
Valley Iron Works Co.
Walworth Company

VATS
Beloit Iron Works
Rice Barton Corporation

WASHERS
The Bagley & Sewall Company
Bird Machine Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
E. D. Jones & Sons Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

WASTE TREATING EQUIPMENT
Hungerford & Terry, Inc.

WATER CONDITIONING
Calgon, Inc.
General Dyestuff Corp.
Hungerford & Terry, Inc.
National Aluminate Corp.
The Permutit Company
The Sandy Hill Iron & Brass Works

WATER DISPERSIONS
American Cyanamid Company Industrial Chemicals Division
Naugatuck Chemical Division of U. S. Rubber Co.
Rohm & Haas Co., Resinous Products Div.

WATER FILTERS
Holyoke Machine Co.

WATER FINISH EQUIPMENT
Dilts Machine Works

WATER PENETRATION TESTER
Thwing-Albert Instrument Co.
Williams Apparatus Co., Inc.

WATER SOFTENERS
Hungerford & Terry, Inc.
The Permutit Company
Wyandotte Chemicals Corp., Michigan Alkali Div.

WATER VAPOR CUPS
Thwing-Albert Instrument Co.

WAXES
Bonge Pulp & Paper Co.

WAXING MACHINERY
Black Clawson Company
Dilts Machine Works
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
The Mayer Machine Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

WEB TENSION CONTROL
Dilts Machine Works (Kohler Systems)
Egan, Frank W., & Co.
John Waldron Corp.

WELDING EQUIPMENT
General Electric Company
Walworth Company

WET MACHINES
The Bagley & Sewall Company
Black Clawson Company
Carthage Machine Co.
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Moore & White Co.
Pusey & Jones Company
Rice Barton Corporation
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

WET STRENGTHENING AGENTS
Plaskon Div., Libbey-Owens-Ford Glass Co.
Reichhold Chemicals, Inc.

WETTING AGENTS
American Cyanamid Company, Industrial Chemicals Division
General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Plaskon Division, Libbey-Owens-Ford Glass Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

WHITE WATER TREATING EQUIPT.
Hungerford & Terry, Inc.
The Permutit Company
The Sandy Hill Iron & Brass Works

WINDERS & REWINDERS
The Bagley & Sewall Company
Beloit Iron Works
The Appleton Machine Co.
Black Clawson Company
Kohler Systems
Cameron Machine Co.
Dietz Machine Works
Dilts Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson-Sharp Mch. Co.
Jagenberg-Werke Akt. Ges.
Langston Co., Samuel M.
Moore & White Co.
Potdevin Machine Co.
Pusey & Jones Corp.
Rice Barton Corporation
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Waldron Corp., John

WINDING ROLL CHANGERS
Dilts Machine Works (Kohler Systems)
Egan, Frank W., & Co.

WIRE BRUSHES
M. W. Jenkins Sons, Inc.
Williams-Gray Co.

WIRES
Appleton Wire Works
International Wire Works
Lindsay Wire Weaving Co.
Williams-Gray Co.

WOOD CHIP ELEVATORS
Stephens-Adamson Mfg. Co.

WOOD SPLITTERS
The Appleton Machine Co.
Carthage Machine Co.
The Permutit Company

How H & T Coagulators Save Space & Cost

1. Over 100,000,000 gallons of water daily are purified in H&T Coagulators. That's two-thirds of a gallon for every man, woman and child in the U.S.
2. Many of these H&T water purifiers were purchased because H&T Coagulators have a low initial cost.
3. Others were bought because of low operational costs—Small amounts of inexpensive chemicals are used.
4. Some buyers like our unconditional guarantees of capacity, effluent quality and workmanship.
5. So if you have a river clarification problem, a white water problem, a water softening problem, or a waste water purification problem, check with H&T.

OVER 100,000,000 GALLONS OF WATER ARE PURIFIED DAILY IN H & T COAGULATORS

SEND FOR BULLETIN 6-1

H&T SERVICE

HUNGERFORD & TERRY, INC.

CLAYTON 4, NEW JERSEY

Test and Record Stiffness of Most Papers and Paper Boards in 21 Seconds

That's all it takes to measure paper up to 0.25" thick with the motorized Gurley Stiffness Tester. It easily handles tissue, newsprint, book, bonds, ledgers, industrial papers, cardboard and carton stocks, and permits a wide range of readings from 1 to 3,358,720.

More than 300 of these aids to faster, more efficient measurement are used in leading mills and laboratories.

Write for Bulletin No. 1400. It describes the motor-driven and hand-operated models as well as other Gurley paper-testing instruments. W. & L. E. Gurley, 520 Fulton Street, Troy, New York.

INDEX TO ADVERTISERS

A

Adams, R. P., Co. 10
Alpha-Cellulose Corp. ..... —
Allis-Chalmers Mfg. Co. ..... —
American Cyanamid Co., Calco Chemicals Div. ..... —
American Cyanamid Co., Industrial Chemicals Div. ..... —
American Defibrator, Inc. ..... —
American Pulp & Paper Assn. —
American Steel & Wire Co. ... —
Ansul Chemical Co. ..... —
Apmew, Inc. ..... —
Appleton Machine Co., The . —
Appleton Wire Works, Inc. ... 8
Appleton Woolen Mills 47
Armco Drainage & Metal Products ..... —
Armco Steel Corp. ..... —
Asten-Hill Mfg. Co. 46

B

Babcock & Wilcox Co. ..... —
Bagley & Sewall Co. ..... —
Bahr Bros. Mfg. Co. ..... —
Bailey Meter Co. ..... —
Barrett Oil Co. ..... —
Bauer Bros. Co. ..... —
Beloit Iron Works 19
Bird Machine Co. ..... —
Birk, F. Paul ..... —
Bixby, R. W., Inc. ..... —
Black-Clawson Co. 6
Blaw-Knox Co. ..... —
Bowsher, N. P., Co. .... —
Brown Co. ..... —
Brown Instrument Div., Minneapolis-Honeywell Reg. Co. .. —
Buffalo Pumps, Inc. .... —
Bulkley, Dunton Pulp Co. .... —
Bunge Pulp & Paper Co. ..... —
Byron Jackson Co. ..... —

C

Cambridge Instrument Co. .... —
Cameron Machine Co. ..... —
Canadian Newsprint Supply Co. —
Carnegie-Illinois Steel Corp. .. —
Carthage Machine Co. ..... —
Chemipulp Process, Inc. ..... —
Chicago Bridge & Iron Co. ... 2
Ciba Company ..... —
Clark-Aiken Co. ..... —
Clark Equipment Co. ..... —
Classified Advertising 48
Cleveland Crane & Engrg. Co. —
Clinton Foods, Inc. ..... —
Columbia Steel Co. ..... —
Combustion Engineering - Superheater, Inc. ..... —
Corn Products Sales Co. ..... —
Crane Co. ..... —
Crucible Steel Corp. of America —

D

Davis Co., Frank H. 50
Deitz Machine Works ..... —
De Laval Steam Turbine Co. . —
DeZurik Shower Co. ..... —
Diamond Alkali Co. ..... —
Dilts Machine Works 6
Dodge Manfg. Co. ..... —
Dow Chemical Co. ..... —
Downingtown Mfg. Co. 33
Draco Corp. ..... —
Draper Brothers Co. 53
du Pont, E. I., de Nemours & Co. Electrochemicals Dept. .... —
du Pont, E. I., de Nemours & Co. Dyestuffs Dept. 17
du Pont, E. I., de Nemours & Co. Grasselli Chem. Dept. ..... —
du Pont, E. I., de Nemours & Co. Polychemicals Dept. ..... —
Durkee Co., The ..... —

E

Ebasco Services, Inc. 52
Egan, Frank, & Co. ..... —
Elixman Paper Core Co. 44
Elwell Parker Elec. Co. ..... —
English China Clays Sales Corp. —

F

Fairbanks, Morse & Co. ..... —
Farrel-Birmingham Co., Inc. .. —
Ferguson, The H. K., Co. ..... —
Fitchburg Screen Plate Co. .... —

G

Geigy Co. ..... —
General Dyestuff Corp. ..... —
General Electric Co. .....14 & 15
Gibbs-Brower Co. ..... —
Glidden Co. ..... —
Goodrich Co., B. F. 3
Goodrich Chemical Co. ..... —
Goodyear Tire & Rubber Co. .. —
Goslin-Birmingham Mfg. Co. .. —
Gotham Ink & Color Co. ..... —
Gottesman & Co. .....Front Cover
Graphic Arts Int. Corp. ..... —
Grinnell Co., Inc. ..... —
Gulf Oil Corp. ..... —
Gurley, W. & L. E. 59

H

Hagan Corp., (Calgon, Inc.) .. —
Hall, Thomas W., Co. 50
Hamblet Machine Co. ..... —
Harris-Seybold Co. ..... —
Heppenstall Co. ..... —
Hercules Powder Co. ..... —
Heyden Chemical Co., Aktivin Div. ..... —
Hoffi Co., Inc. ..... —
Holyoke Machine Co. ..... —
Hooker Electrochemical Co. ... —
Huber, J. M., Corp. ..... —
Hubinger Co., The ..... —
Hudson-Sharp Machine Co. ... 55
Hungerford & Terry, Inc. 59
Huyck, F. C., & Sons 61

I

International Nickel Co. ..... —
Industrial Raw Materials Corp. 31
International Wire Works .... —

J

Jackson & Church Co. ..... —
Jagenberg-Werke Akt. Ges. ... —
Jeffrey Mfg. Co. ..... —
Jenkins, M. W., Sons, Inc. ... —
Johnson Corp., The ..... —
Johnson, Alvin H., & Co. 46
Jones, E. D., & Sons Co. 42

K

Kalamazoo Tank & Silo Co. ... —
Kinsley Chemical Co. 46
Knox Woolen Co. 57
Koppers Co., Inc. 27

L

Labeltape Co. ..... —
Langston, Samuel M., Co. .... —
Lindsay Wire Weaving Co. ... —
Lodding Engineering Co. ..... —
Lockport Felt Co. ..... —
Lodding Engineering Co. ..... —
Lovejoy Flexible Coupling Co. . 43
Lukens Steel Co. ..... —
Lyddon Co. ..... —
Lynch Corp. ..... —

M

Magnus Metal Div., Nat. Lead Co. ..... —
Main, Charles T., Inc. 47
Manchester Machine Co. ..... —
Marietta Concrete Corp. ..... —
McBride, Edward J., Co. 56
Mead Sales Co., The ..... —
Meincke, A. M., & Son 47
Meisel Press Mfg. Co. ..... —
Merrick Scale Co. ..... —
Michigan Steel Casting Co. ... 46
Mixing Equipment Co. 41
Monsanto Chemical Co. 35
Montague Machine Co. ..... —
Moore & Munger Co. ..... —
Moore & White Co. 13
Moorhead Electrical Machinery Co. ..... —
Morden Machines Co. ..... —
Morey Paper Mill Supply Co. . —
Morningstar, Nicol, Inc. ..... —
Mount Hope Machinery Co. .. —
Murray, D. J., Mfg. Co. ..... —

N

Nash Engineering Co. ..... —
National Adhesives ..... —
National Aluminate Corp. 47
National Aniline Div., Allied Chem. & Dye Corp. ..... —
National Starch Products, Inc. . —
National Tube Co. ..... —
Naugatuck Chem. Div., U. S. Rubber Co. ..... —
Niagara Alkali Co. ..... —
Nichols Engrg. & Research Co. —
Nopco Chemical Co. ..... —
Norton Co. ..... —

O

Oldbury Electro Chemical Co. —
Oliver United Filters, Inc. ... —
Osborne Paper Mill Equipt. Corp. 50

P

Paper & Industrial Appliances . —
Paper Mill Stores ..... —
Parsons & Whittemore ..... —
Peabody Engrg. Co. ..... —
Perkins, B. F., & Sons Co. .... —
Perkins Goodwin Co. ..... —
Permutit Co., The ..... —
Photovolt Corp. ..... —
Pittsburgh Plate Glass Co. .... —
Plaskon Div., Libbey-Owens-Ford —
Poirier Control Co. ..... —
Potdevin Machine Co. 52
Powell, William, Co. ..... —
Price & Pierce, Ltd. 54
Pulp & Paper Trading Co. .... —
Pusey & Jones Corp., The .... —

R

Railway Supply & Mfg. Co. ... —
Raymond, Chas. P., Service, Inc. 48
Reading Crane & Heist Co. .... —
Record Fdy. & Machine Co. .. 58
Red Ray Manufacturing Co., Inc. 56
Reichhold Chemicals, Inc. 37
Reidel, Gus, & Son ..... —
Reliance Elec. & Engrg. Co. .. —
Research Corp. ..... —
Restigouche Co., Ltd. ..... —
Rice Barton Research Corp. ... —
Rogers, S. C., & Co. ..... —
Rohm & Haas Co. ..... —
Roosevelt Paper Co. ..... —
Roots-Connersville Blower Corp. —
Rose, J. J., Co. 49
Rose, J. O., Engrg. Corp. 25
Ross Paper Machinery Co. .... —
Rust Engineering Co. 47

S

Sandusky Fdy. & Mch Co. ... 57
Sandy Hill Iron & Brass Works 47
Seaboard Air Line R.R. Co. .. —
Shartle Brothers Machine Co. . 6
Shuler & Benninghofen ..... —
Simonds Saw & Steel Co. .... —
Sinclair Refining Co. ..... —
Sirrine, J. E., Co. 51
SKF Industries ..... —
Smidth, F. L., & Co. ..... —
Smith & Winchester Mfg. Co. . —
Socony Vacuum Oil Co., Inc. Back Cover
Sonoco Products Co. 51
Spray Engineering Co. 40
Sprout, Waldron & Co., Inc. .. 39
Squier Corp., The ..... —
Stebbins Engrg. & Mfg. ..... —
Stein, Hall & Co., Inc. ..... —
Stephens Adamson Mfg. Co. .. 45
Stickle Steam Specialties Co. . —
Stowe Woodward Inc. ..... —
Stroh Process Steel Co. ..... —
Sun Oil Co. ..... —
Sutherland Refiner Corp. 46
Swenson Evaporator Co. 46

T

Taylor Instrument Cos. ..... —
Taylor Stiles & Co. ..... —
Tennessee Coal, Iron & R. R. Co. ..... —
Testing Machines, Inc. ..... —
Texas Co., The ..... —
Texas Gulf Sulphur Co. ..... —
Thiele Kaolin Co. ..... —
Thwing-Albert Instrument Co. . —
Tide Water Assoc. Oil Co. ... 23
Timken Roller Bearing Co. ... —
Tissue Converting Corp. ..... —
Titanium Pigment Corp. 4
Towmotor Corp. ..... —
Tracerlab, Inc. ..... —

U

Union Screen Plate Co. ..... —
United Carbon Co., Inc. ..... —
U. S. Rubber Co. ..... —
U. S. Steel Corp. ..... —
United States Steel Export Co. —
United States Steel Supply Co. —

V

Valley Iron Works Co. ..... —
Vanderbilt, R. T., Co. ..... —
Vaughan, Frank C. ..... —
Virginia Smelting Co. ..... —

W

Waldron, John, Corp. ..... —
Walworth Co. ..... —
Waterbury Felt Co. ..... —
Waterbury, H., & Sons Co., Inc. ..... —
Weber, H. G., & Co., Inc. ... —
Wellman Engineering Co. .... —
Western Gear Works ..... —
Western Precipitation Corp. ... —
West Virginia Pulp & Paper Co. 54
Weyerhaeuser Timber Co. .... —
Wheeler Roll Co. ..... —
Whiting Corp. ..... —
Williams Apparatus Co. 58
Williams Gray Co. ..... —
Worthington Pump & Mach. Corp. ..... —
Wyandotte Chemicals Corp. ... 29

BUSINESS STAFF

Arthur E. Gordon, Business Mgr. — **Frederick B. Grosse, Production Mgr.**

Bruce E. Brown — George Heitzberg — H. K. Vinton — Franklyn H. Olsen

15 West 47th Street, New York, 19, N. Y. PLaza 7-2370 — Room 1020, 79 West Monroe St., Chicago, 3, Ill. CEntral 6-2784

McDonald-Thompson Company

LOS ANGELES, 3, CAL.: 3727 West Sixth Street, DUnkirk 7-5391 — SAN FRANCISCO, CAL.: 625 Market St. YUkon 6-0647

SEATTLE, 1, WASH.: Terminal Sales Bldg., MAin 3860 — PORTLAND, 4, ORE.: 115 SW Fourth Ave. ATwater 7401

DENVER, 2, COLO.: 317 Railway Exchange Bldg. MA 2733

EDWARD M. BUCK, 3735 Durango Drive, DALLAS, 5, TEXAS. Justin 8-8378

322 Ponce De Leon Ave., Atlanta, Ga.

Illustration from the Bettmann Archive

Paperboard Salesman— Model 1810

The French, mindful of their finery, were the first to fashion sturdy boxes of paperboard for ladies' and gentlemen's hats. Built up by hand from multiple layers of paper, the board was shaped and moulded into boxes, some of them finished with a plain glazed surface, some with decorations. Then the salesman with his loaded display of paperboard boxes would call his wares through the streets of Paris.

Hat boxes, not much changed in design after 140 years, are still widely used for millinery and men's hats. But the once precious paperboard, now produced by modern high-speed methods, low in cost and plentiful, today protects just about every commodity used by business and the home. For packaging, for shipping, for sanitary protection, for display, for convenience, paperboard cartons and containers are the indispensable carriers of modern merchandise. No wonder paperboard accounts for nearly one-half the total production of the American pulp and paper industry.

The dramatic story of paper is told in the sound-and-color film, "Paper— Pacemaker of Progress," and in a book under the same title. Both are presented by F. C. Huyck & Sons as a tribute to the Paper Industry. The book will be sent free upon request.

F. C. HUYCK & SONS • *Kenwood Mills* • RENSSELAER, N. Y.

KENWOOD MILLS

HUYCK *Felts*

ARE YOU ON A MAINTENANCE MERRY-GO-ROUND?

Every year, the United States spends the fantastic sum of *over eight billion dollars* just on maintenance of its industrial plant—sad proof that too many companies are on a "maintenance merry-go-round"!

Needless to say, this huge expenditure cuts deeply into profits . . . makes it imperative for you to examine *your* maintenance costs—find ways to keep them as low as possible.

One proved way to do this is to see that all your machines get *Correct Lubrication*. This means far more than just "oils and greases." It means an analysis of your plant, recommendations of the right lubricants, guidance on when and how to use them.

Socony-Vacuum, with 85 years of experience, provides this combination of knowledge and product in one completely integrated lubrication program, tailored for your individual plant.

Why not start such a program now . . . and start cutting *your* maintenance costs?

SOCONY-VACUUM

SOCONY-VACUUM

GARGOYLE

Lubricants

SOCONY-VACUUM

Correct Lubrication

WORLD'S GREATEST LUBRICATION KNOWLEDGE AND ENGINEERING SERVICE

SOCONY-VACUUM OIL COMPANY, INC., and Affiliates:
MAGNOLIA PETROLEUM COMPANY, GENERAL PETROLEUM CORPORATION